A SURVEY OF REGISTERED INDUSTRIAL ACCOUNTANTS ON THE IMPORTANCE OF SELECTED MANAGEMENT ACCOUNTING TOPICS

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ABSTRACT

A SURVEY OF REGISTERED INDUSTRIAL ACCOUNTANTS
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This thesis contributes towards a reduction in the gap between the practice of management accounting and the education of management accountants. The management accountant's body of knowledge has been increasing in recent years and this gap may also be expanding.

The purpose of the study is to determine and analyse the perceptions of practicing Registered Industrial Accountants (RIAs) on the importance of selected management accounting topics in meeting their current work responsibilities. The study provides information for assessment of the RIA curriculum, of the applicability of one body of knowledge (BOK) to all RIA management accountants, and of RIAs' professional development needs.

To achieve these objectives a questionnaire was mailed to a random sample of two thousand RIA management

accountants practicing in Canada. After two mailings, 1425 usable questionnaires were returned for a response rate of 71.3%. From comparisons of the demographic profiles, respondents were shown to be very representative of the RIA population. The response data were examined and tested extensively for possible nonresponse bias and none was indicated by the results.

The following general comments are appropriate regarding the findings:

1. RIA management accountants indicate the highest ratings for the Management Accounting topics, followed by the topics relating to Financial Accounting (second) and Financial Management (third);
2. RIA management accountants indicate a higher need for knowledge of Organization Behaviour, Financial Management and Auditing relative to the weights of these areas in the BOK;
3. RIA management accountants indicate a lower need for knowledge of Economics, Commercial Law, Data Processing and Quantitative Methods relative to the weights of these areas in the BOK;
4. RIA management accountants indicate a low importance to knowledge of Computer Programming,

Quantitative Methods, Social Measurement and International Reporting to them in their work;

5. there are only relatively minor differences in the importance of the topics to RIAs who followed different curricula; and

6. the topics are of higher over-all importance to management accountants in business organizations except for two areas (Organization Behaviour and Auditing) which are more important to those working in non-profit organizations.

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INTRODUCTION

Economic factors in North America during the past four decades have been very favourable for the growth of business education in general and for professional accounting qualifications in particular. This growth has been demonstrated not only by the increase in the numbers of qualified accountants but also by the broadening of accounting curricula. The expansion of topics in accounting education has given rise to two divergent trends: the need for accountants to study a greater range of subjects (broad knowledge) versus the need for accounting specialization (in-depth knowledge).

During this era of growth in accounting, concern has been expressed about a developing gap between what students are taught and the knowledge necessary for beginning accounting practitioners:

> Because of the continued rapid development in the field of accounting and auditing standards, there is a need to examine present accounting educational programs to determine whether they are providing the candidate with an adequate background in the technical areas.[1]

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[1]/ James H. MacNeil, "Discussion of Roy and MacNeil Plus Ten", in Accounting Education: New Horizons for the Profession, ed. Donald H. Skadden (Ann Arbor: University of Michigan, 1977) p. 11.

> ... any profession has the right, even the obligation, to specify what it expects its members to have regarding background and preparation, including education.[2]

> My concern today is that these differences [between the practitioner's world and the educator's world] appear to be increasing...[3]

One professional accounting group looking into the future stated in its report:

> [accounting curriculum] is based on the educator's assessment of future needs and not on the needs as perceived by those in practice.[4]

The objective of this study is to obtain and analyse perceptual information from practicing management accountants to evaluate and make recommendations about their educational programmes.

The Evolution of Management Accounting

A very significant development in the accounting profession is its resolution into two related but distinguish-

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2/ Maurice Moonitz, "The Beamer Committee Report- A Golden Opportunity for Accounting Education", Journal of Accountancy 36 (August, 1973): 65.

3/ R.K. Mautz, "Where Do We Go From Here?", The Accounting Review 49 (April, 1974): 353.

4/ Committee on Long-Range Planning, "The CPA Profession in Illinois in 1990", Illinois State CPA Society, May 1973, p. 61.

able areas: financial and management accounting.[5] Some writers have traced the development of management accounting back to manufacturing records and accounts used in the Mediterranean area in the 15th century.[6] However, it is mainly since World War II that management accounting has become established as a distinct discipline with its own body of knowledge and professional identity.

During World War II the pressure for output and the growth of "cost-plus" contract business resulted in a general disinterest in cost control techniques.[7] In addition, there were shortages of accounting personnel and an absence of competitive pressure on costs. Cost control techniques which had been developed early in the century and which were

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5/ The term "management accounting" as used in this dissertation is synonomous with "managerial accounting" and encompasses "cost accounting". This view is supported by Charles Horngren in Cost Accounting: A Managerial Emphasis, 4th ed. (Englewood Cliffs: Prentice-Hall, Inc., 1977) p. 4. The following definition from Horngren is compatible with the use of the term "management accounting" throughout this dissertation:

> "The field of managerial (cost) accounting is concerned mainly with how accounting can serve internal decision makers, such as managers." Ibid.

6/ See, for example, Robert H. Parker, Management Accounting: An Historical Perspective (London: Macmillan and Co. Ltd., 1969).

7/ Clinton Bennett, "Trends in Cost Control Practice", N.A.C.A. Bulletin 36 (March 15, 1947) pp. 918-920.

becoming more widely known in the 1920s and 1930s, were quickly downgraded because of war-time priorities.

Following World War II there was renewed interest in cost planning and an emphasis on a new, potential role for management (then called "internal") accountants: providing support to management. There was also an expansion of accounting control techniques developed for manufacturing operations to applications in government and the service industries. During the 1950s the business expansion which had commenced in the 1940s continued. New organizational structures emerged and they required new internal information systems.[8] Management accounting responded with improved budgeting procedures, performance reporting and variance analysis. Direct costing, which had been publicized in the 1930s, became more widely known and accepted and there was renewed interest in standard costing systems.

Trends of expansion established in the 1950s continued through the 1960s and into the 1970s. The extension of management accounting techniques to service and nonprofit organizations became a major facet in the evolution of the discipline. In 1962 the Royal Commission on Government Organization encouraged this development when it recommended the

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8/ George F. Wieland and Robert A. Ulrich, Organizations: Behavior, Design and Change (Homewood, Illinois: Richard D. Irwin, Inc., 1976) pp. 39-44.

use of management accounting techniques in the operations of the Canadian government.[9] As decision making in organizations became more complicated, increasing demands were placed on management accountants to provide support for the management function. Sophisticated mathematical models were adapted to managerial decisions and applications of these models became commonplace. Electronic data processing equipment and procedures became a necessary part of the management accountant's body of knowledge. Concurrently, there was an increased awareness of the impact of human behaviour on accounting. All these developments culminated in a "systems approach" towards management accounting and control in an attempt to provide an overall structure for relating and integrating the various models and techniques.

The Evolution of Professional Organizations of Management Accountants

The Early Years

The growth in the discipline of management accounting was also reflected in the professional management accounting organizations which were established and then flourished in Canada, the USA and the UK. This section traces the devel-

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9/ The Royal Commission on Government Organization, Vol. 1, Part 2, Queen's Printer, Ottawa, July, 1962.

opment of the Society of Management Accountants (SMA)[10] and its counterparts, the National Association of Accountants (NAA) in the USA and the Institute of Cost and Management Accountants (ICMA) in the UK. SMA provides an educational program which leads to the qualification "Registered Industrial Accountant" (RIA). The NAA, through its subsidiary organization the Institute of Management Accounting (IMA), provides candidates the possibility of earning the designation "Certified Management Accountant" (CMA). The ICMA grants two levels of designations, "Associate Cost and Management Accountant" (ACMA) and "Fellowship in Cost and Management Accounting (FCMA).

The years after World War I were eventful for the profession of management accounting. NAA and ICMA were both established in 1919 with the original names "National Association of Cost Accountants" and "Institute of Cost and Works

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10/ SMA is the professional accounting organization specializing in management accounting in Canada. The ten provincial counterparts of SMA grant the designation Registered Industrial Accountant (RIA) to those who meet the established educational and practical experience requirements. Details about the importance of SMA to the education and practice of management accounting in Canada, essential background to this study, are given in the next section of this Chapter.

Accountants", respectively. SMA was originated in 1920 as the "Canadian Society of Cost Accountants"[11].

The stated objectives of the three organizations were similar because they reflected a commonly felt concern that a significant area of accounting was not receiving sufficient attention from the accounting organizations which were previously in existence. However, ICMA was different in that it had from the start among its main objectives "...to secure for them [cost accountants] a definite professional status by means of a system of examinations and the issue of certificates of competency."[12] In its initial objectives SMA declared its wish to establish instructional classes and other methods to communicate the knowledge and importance of systematic cost accounting. However, perhaps because SMA was founded by eight Chartered Accountants, no provision for professional certification was considered necessary in 1920. The NAA was founded by 37 public and private account-

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11/ Details of the history of these three organizations can be found as follows:

SMA in "The Path to Maturity", Cost and Management 44 (May-June 1970): 10-19.

NAA in "Commemorative History of the NAA", Management Accounting (USA) 47 (August, 1969): 68.

ICMA in "1919-1969: Portrait of a Profession", Management Accounting (UK) 44 (March, 1969): 91-95.

12/ ICMA, "1919-1969: Portrait of A Profession": 92.

ants whose original objectives, similiar to those of SMA, were primarily the communication of cost accounting techniques and related practical knowledge. SMA and NAA became officially affiliated in 1922, but this relationship was ended in 1926.

Comparison of SMA and NAA

In 1925 NAA took the initial steps toward the establishment of an examination program, however, the plan was later put aside. At that time NAA's executive decided the association's objectives would best be met by attracting a broad, mixed membership. SMA on the other hand started planning for a Certificate of Efficiency which was established in 1928 with courses offered at McGill University and the University of Toronto. These events reflected the development of a basic difference in orientation between SMA and NAA which has continued to influence their memberships and activities.

SMA established the RIA program in 1940 with its curriculum conceived by four professors from three different universities. This heavy reliance on academics, with some reference to a few selected practitioners, for RIA curriculum development continued through four major curriculum revisions until today. The evolution of the RIA curriculum is discussed in the next section.

NAA was slow to respond to a growing recognition starting in the 1950s that professional certification of management accountants would be desirable.[13] In 1967 the American Institute of Certified Public Accountants (AICPA) published the results of an extensive, four year study intended to identify the "common body of knowledge to be possessed by those about to begin their professional careers as Certified Public Accountants."[14] One unintended consequence of this study was to spur the development of a management accounting certification program because the study advocated a common body of knowledge for all accountants regardless of where they practiced the profession.[15] In 1968 the NAA's Long-Range Objectives Committee made a recommendation for the creation of a designation program which would recognize educational achievement in management accounting. NAA executives in 1971 approved the creation of the Institute of Management Accounting (IMA), a separate division of NAA,

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13/ One example, from several authors in the 1950's who proposed a certification program for management accounting, is Charles T. Zlatkovich in "Training for an Accounting Career: A Educator's View", The Accounting Review 33 (April, 1958): 193.

14/ Robert H. Roy and James H. MacNeill, Horizons for a Profession. (New York: American Institute of Certified Public Accountants, 1967).

15/ For an example of criticism of Horizons see John W. Buckley, "The Myth of the Compleat Accountant", The Federal Accountant (September, 1972) pp. 40-43.

which would administer a Certificate in Management Accounting (CMA) program.

While the CMA program aims to foster a higher educational standard in the discipline of management accounting, the IMA does not itself design nor provide an educational program. To obtain the CMA designation candidates must pass a five part CMA examination and complete two years of related professional experience. The IMA operates solely as an examining authority in contrast to SMA which designs and delivers the educational program upon which it also examines.

The SMA and the RIA designation are well established and accepted in Canada; they have existed for 58 and 38 years, respectively. The IMA on the other hand is 6 years old and still in the process of becoming accepted. While SMA has substantial numbers of registered members located in all segments of the profession[16], IMA has a more limited membership with an apparent over-representation of academics.[17]

16/ In 1970 when establishment of the IMA was still two years away, SMA had 5,500 RIAs and 14,500 RIA students. See SMA, "The Path to Maturity", p. 18.

17/ The IMA 1978 Roster of Certificate in Management Accounting showed 1160 CMAs. There were 192 academics, just under 17% of all CMAs in 1978, while academics accounted for just over 2% of all RIAs at the time.

SMA's stated purpose "is to be the Society in Canada for the Profession of Management Accounting"[18] and there is evidence it is achieving this position. The IMA, on the other hand, is in the initial stages of establishing its creditability. SMA has a larger and broader membership base than IMA, with a significantly larger membership representation of the profession of management accounting.

There is evidence that the RIA program has achieved a high degree of acceptance and recognition in the business community. Some examples are:[19]

> "The RIA graduate and student are held in high regard at Dofasco."
> J. Plumption, Comptroller,
> Dominion Foundries and Steel Limited

> "We have nothing but praise for the RIA course..."
> A.S. Jackson, Vice President and Treasurer,
> The Investors Group

> "The Society of Industrial Accountants is uniquely qualified to serve Canadian industry in meeting the important challenges in the technology of accounting and finance."
> W.R.C. Blundell, Treasurer
> Canadian General Electric Co. Ltd,.

Exhibit 1 lists chronologically the name changes made by SMA as an indication of the dynamic nature of management

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18/ SMA, "The Society for Management Accountants Today", Cost and Management 44 (May-June, 1970): 24.

19/ These statements are taken from letters quoted in SMA, "The Path to Maturity", p. 29.

accounting during the past several decades. The addition and later deletion of "industrial engineers" illustrate the early relationship between management accounting and industrial engineering, where many cost control and reduction techniques had their origins. The name "cost" was dropped because the discipline had broadened to concepts beyond cost accounting alone. Finally, the name "industrial" was replaced by "management" to reflect the increasing coverage of the discipline to all types of organizations.

Exhibit 1

The Society of Management Accountants of Canada

Chronological List of Name Changes

1920	The Canadian Society of Cost Accountants
1930	The Canadian Society of Cost Accountants and Industrial Engineers
1948	The Society of Industrial and Cost Accountants of Canada
1968	The Society of Industrial Accountants of Canada
1977	The Society of Management Accountants of Canada

Source: "The Path to Maturity", Cost and Management 44 (May-June 1970): 10-19.

Management Accounting Education

A Body of Knowledge

One feature of a profession is that it has its own body of knowledge (BOK) in which members of the profession are expected to be competent. Before formal education existed new entrants into professions were taught the releveant BOK by practitioners. The formalization of an accounting BOK is a relatively recent development.

As mentioned previously, the AICPA in 1969 published the results of a four year study intended to define the common body of knowledge for beginning CPAs.[20] Four methods were used to collect evidence and opinions for the study:

1. questionnaires were sent to a sample of public accounting firms;
2. college catalogues were reviewed;
3. a number of "knowledgeable persons" were asked to rank academic subjects in their order of importance to the beginning CPA; and
4. interviews were conducted with "knowledgeable persons" in accounting or related disciplines.

Although the study was primarily oriented towards public accounting it had an immediate impact on all accounting

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20/ Roy and MacNeill, Horizons.

education[21] and it continued to be a focal point for writings on accounting education during the 1970s.

In the same year as the AICPA study, SMA published "The Management Accountants' Body of Knowledge"; a revised version was published in 1976. SMA's BOK, in contrast to Horizons, was not widely publicized outside SMA membership and the main impact of the BOK was to provide for revisions to the RIA program. Exhibit 2 summarizes the RIA program changes recommended in the 1969 version of the BOK.

Another contrast between Horizons and SMA's BOK is that the latter was not based on any systematic collection of evidence and opinion. SMA's research staff put its BOK together based mainly on literature searches and the opinions of a few members serving as committee members. Nevertheless, SMA's BOK was a well reasoned document which, through its impact on the RIA curriculum had a slow, but important influence on the education of management accountants in Canada.

The RIA Curriculum

The original RIA curriculum, as noted earlier, was set in 1940 by four professors from three different universi-

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21/ Doyle Z. Williams, "Reactions to Horizons for a Profession", Journal of Accountancy 6 (Spring 1968): 81.

Exhibit 2

Changes in the Relevant Importance of the Seven Areas Comprising the BOK

AREA	WEIGHTS PROPOSED	EXISTING
Accounting	35.0	46.0
Organizational Behaviour, Economics, and Report Writing	15.0	6.5
Legal Aspects of Business	10.0	14.5
Finance and Auditing	10.0	15.5
Computers and Systems	10.0	3.0
Management	10.0	9.0
Quantitative Methods	10.0	5.5
	100.0	100.0

Source: Society of Industrial Accountants of Canada, The Management Accountants' Body of Knowledge (Hamilton: Society of Industrial Accountants of Canada, 1969) p. 17.

ties. Financial accounting and business management courses composed this initial course of RIA studies.[22]

The first revision to the 1940 curriculum was implemented in 1958 and the program then contained the following courses:

22/ General information about RIA curriculum changes is given in SMA, "The Path to Maturity". The discussion in this section also includes information supplied by Mr. W.E. Langdon, Director of Research, SMA, to the author in a letter dated January 10, 1978.

Accounting I and II
Cost Accounting I and II
Statistics
Report Writing
Industrial Organization and Management
Industrial Legislation

In 1963 a more rigorous curriculum was introduced which contained two more accounting courses, "Accounting III", (consolidations, financial management) and "Accounting IV" (topics including taxation and advanced management accounting) and added topics to the existing courses. Two years later, in 1965, the two cost accounting courses and Accounting IV were replaced by "Cost Accounting and Systems" and "Cost and Management Accounting".

A major curriculum revision was phased in between 1970 and 1975 as a result of acceptance of the 1969 BOK. This new curriculum, which is still in effect, is listed in Exhibit 3.

In their efforts to ensure the relevance of the SMA educational curriculum to practicing management accountants, SMA executives periodically review the content of the RIA program. These curriculum reviews vary in their frequencies and in the factors taken into consideration. During the most recent review conducted during July and August, 1977, the following sources of information were used:

1. SMA documents and minutes;
2. meetings with provincial education committees;

Exhibit 3

Courses in the RIA Curriculum

	Course Code	Course Name
Level I:	15	Business Mathematics
	11	Principles of Accounting
	12	Introductory Economics
	22	Commercial Law
	14	Data Processing Equipment and Programming
Level II:	21	Accounting Theory and Problems
	13	Report Writing
	23	Organizational Behaviour
	32	Quantitative Methods for Analysis and Decision-Making: Part I
Level III:	31	Accounting for Cost Determination, Analysis and Control
	24	Taxation
	33	Quantitative Methods for Analysis and Decision-Making: Part II
Level IV:	41	Accounting for Management Planning and Control
	42	Financial Management
	43	Selected Topics and Contemporary Issues in Accounting
Level V:	51	Information Systems: Analysis, Design and Implementation
	52	Operational Auditing
	53	Management: Processes and Problems

Source: The Society of Industrial Accountants of Canada, "Educational Program Calendar."

3. thirty-five replies to an open-letter published in the May, 1977, issue of the RIA Digest;

4. letters and questionnaires sent to selected executives, instructors, markers, students and graduates. (Fifty-seven questionnaires were sent to RIA graduates, thirty-five were returned); and,

5. visits to thirteen colleges and universities.[23]

During these curriculum changes SMA responded to the government's need for qualified management accountants by providing a special, full-time educational program for government sponsored employees.[24] This program was based on the existing RIA curriculum. An implicit assumption was made that a single course of studies, the RIA program, was appropriate for management accountants in all types of organizations. SMA did develop a post-RIA, eleven course set of studies, leading to an Advanced Studies Certificate, which included optional courses specifically covering government accounting. However, this advanced program never attracted sufficient students to make it viable and the RIA program remains as the only professional education program in Canada oriented exclusively to management accounting. The question of the applicability of the RIA program to management

23/ The Society of Management Accountants of Canada. "A Review of the RIA Educational Program". Hamilton, Ontario, 1977, pp. 2-3.

24/ J.N. Allan, "The Society and the Accounting Profession", Cost and Management 44 (May-June, 1970): 40.

accountants employed in profit-oriented organizations as well as those in government organizations has not been answered.

Four aspects of the evolution of the RIA program are noteworthy. First, the program has been dynamic, particularily in the 1960s and 1970s. It has grown in response to the expansion of the discipline of management accounting. Second, RIA curriculum revision has been largely an internal, SMA process with no systematic collection of empirical evidence. Third, the RIA program has been kept as a "universal" program without special courses or coverage for non-profit organizations.

The fourth aspect concerns the impact of the RIA curriculum on management accounting education in Canadian universities and colleges. This impact is indirect and has not been formally measured. Students can receive full credit for many (but not all) of the courses in the RIA program if they pass "equivalent courses" at an educational institution accredited by SMA.[25] The majority of universities and colleges have established course equivalencies with a number of the RIA courses because equivalent courses will then attract more students. When the content of an RIA course is chang-

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25/ Generally, an "equivalent course" is one (or more) which covers the breadth and depth of topics in the related RIA course. The process of determining "equivalent courses" is the responsibility of each of the 10 provincial Societies and varies slightly from province to province. However, this process is not relevant to the current discussion.

ed, educational institutions must ensure that their equivalent courses continue to cover the breadth and depth of RIA course coverage or risk losing one or more course equivalencies. This process gives the RIA program an unintended, but important impact on management accounting education in Canada. However, because the main influence on the RIA curriculum itself is from academic sources, there is a danger that a self-justifying, closed system could exist.

Current Problems

Much has been written within the last seven years on the existence of a gap between accounting education and practice. The following is typical of this point of view:

> The thesis of this paper is that over the last three decades a changing sense of values has led accounting education to change its priorities in directions that make it less relevant to the needs of students and their prospective employers. During this period there has been a substantial shift in emphasis from teaching to research, from practice to theory, and from experience to publication. Accompanying that shift, and partly as a result of it, accounting education has tended to slip out of the mainstream of educational purpose. Neither its teachings, its publications, nor its research are as relevant to the needs of students as they should be.[26]

26/ Robert K. Mautz, "The Over-Intellectualization of Accounting Education" in Accounting Education: Problems and Prospects, ed. James Don Edwards (Sarasota, Florida: American Accounting Association, 1974) p. 30.

Bastable comments that the gap is widening and places some blame on accounting educators:

> As time passes, I become increasingly concerned about the widening schism between accounting professors and accounting practitioners, especially because some of the reasons for it appear to affect the character of professional education for accountancy. It is paradoxical that academia itself may generate circumstances and conditions that may not be conducive to optimal professional education.[27]

Skousen states that "the gap between academia and practice needs to be bridged" and he recommends that there should be more interaction to allow practitioner input into professional accounting programs.[28]

Another current question in accounting education is how much expansion can be made to the accountants' body of knowledge and still keep the educational period reasonable. As early as 1968 Trueblood expressed his concern:

> ...the greatest educational problem of the [accounting] profession is that there are almost too many things that accountants should be taught...[29]

27/ Charles W. Bastable, "Why Can't Johnny Account?", Journal of Accountancy 143 (January, 1977): 63.

28/ K. Fred Skousen, "Professional Programs and Schools of Accountancy" in Accounting Education: New Horizons for the Profession, ed. Donald H. Skadden (Reston, Virginia: The Council of Arthur Young Professors, 1977) p. 79.

29/ Robert M. Trueblood, "A Far-Away Thing", Tempo (December 1968), p. 31.

Usry commented that accounting curricula may contain obsolete subject matter and duplication.[30] Elimination of unnecessary topics would help counteract the pressure for curriculum expansion.

One major response to the pressure of the expanding accounting BOK is the growth in associations devoted to particular speciality areas in accounting and information systems. The growth of specialist organizations poses a threat of competition for the more general programs, such as the RIA, if they fail to accomodate the needs of the specialities. Organizations of security analysts, systems analysts, data processors and consulting analysts if allowed to proliferate will narrow the scope of the profession of management accounting. Many of these "para-accounting" organizations have been founded in the USA during the 1960s and 1970s to meet an apparent demand for specialist qualifications which was not being filled. Details of three of these organizations, which are active in the USA and Canada and which are particularily relevant to accounting, are given in Exhibit 4.

Management accounting educators and textbook authors have recently paid greater attention to the provision of course material covering the application of techniques to

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30/ Milton F. Usry, "Accounting Education: A Look to the Future", Journal of Accountancy 134 (July, 1972): 86.

Exhibit 4

Examples of Para-Accounting Professional Organizations

Organization	Professional Designation	Year Originated
Institute of Chartered Financial Analyts	Chartered Financial Analyst (CFA)	1961
Institute of Internal Auditors	Certified Internal Auditor (CIA)	1974
Data Processing Management Association	Certificate in Data Processing (CDP)	1962

Source: Encyclopedia of Associations, Volume 1, 12th ed. (Detroit, Michigan: Gale Research Company, 1978).

nonprofit organizations.[31] The first text devoted entirely to management control in nonprofit organizations appeared in 1975.[32] Two quotations from this text reveal potential gaps between the text material and its applicability:

31/ This trend is seen in subsequent editions of management accounting textbooks. For example, Charles T. Horngren, in Cost Accounting: A Managerial Emphasis, 4rd Ed. (1977), in a section entitled "Changes in this edition", (Preface, pp. XX and XXI) states:

> "4. More attention is paid to cost accounting in non-manufacturing and not-for-profit organizations, primarily via the use of illustrations and problems."

32/ Robert N. Anthony and Regina Herzlinger, Management Control in Nonprofit Organizations (Homewood, Ill: Richard D. Irwin, Inc., 1975).

> First, [this book] attempts generalizations about topics for which no generalizations have existed. As is the case with all management subjects, there is an inadequate basis, either deductively or inductively, for such generalizations.
>
> [This book's] thesis is that the basic control concepts are the same in both profit-oriented and nonprofit organizations, but that because of the special characteristics of nonprofit organizations, the application of these concepts differs in some important respects.[33]

There exists a need for research to evaluate the usefulness of management accounting techniques to practicing management accountants and to investigate differences in applicability between profit-oriented and not-for-profit organizations.

A second major response to the expanding accounting BOK has been the growth of professional development (PD) programs for accounting professionals who already hold accounting designations. While there is now relatively minor controversy about the merits of PD, there is little agreement on the content of these programs.[34] Research is needed to clarify what the content of PD programs for management accountants should be.

In Canada, while less has been written on these matters, the problems with accounting education appear to be

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33/ Ibid, pp. vii and 2.

34/ CA Magazine, "In Focus - Is the Business Sector Being Served?" 109 (December, 1976): 18-20.

similar to those reported for the USA. Recently Rosen stated:

> The many and varied [accounting] educational problems now existing across Canada point toward the need for a major overhaul of our present system.[35]

The writings about accounting educational problems have been almost exclusively directed to the education of public accountants, Certified Public Accountants (CPAs) in the USA and Chartered Accountants (CAs) in Canada, with particular reference to university and college curricula. This is understandable because the organizations sponsoring the CPA and CA designations do not themselves conduct student educational programs. In addition, many of the problems discussed, e.g. lack of qualified teachers, etc., are not within the scope of this dissertation. Nevertheless, there is reason to believe that these problems, particularily the possible gap between education and practice, the trend to specialist qualifications and the pressure for PD, are equally relevant for management accounting education in Canada.

35/ L.S. Rosen, "Accounting Education: A Grim Report Card", CA Magazine 111 (June, 1978): 30.

The Current Study

Need for Study

There are at least two significant reasons for research into management accounting education at present. First, although there has been extensive discussion of accounting education, relatively little empirical research has been conducted.[36] Second, there have been extensive changes in the management accountant's body of knowledge which raise the risk of a gap between education and practice. For example, Buckley claims that many of the traditional activities of accounting are no longer considered part of the "normative knowledge-set" of the profession.[37]

Although SMA has put a great deal of effort into the review of its educational programs, the following conclusions are noteworthy:

1. there appears to be an over-reliance on the opinions of educators with insufficient attention paid to the opinions of practitioners;
2. while there have been some recent studies which investigated the opinions of accounting practi-

36/ James Don Edwards, ed., Accounting Education: Problems and Prospects, (Sarasota, Florida: American Accounting Association, 1974), p. IX.

37/ John W. Buckley, In Search of Identity (Los Angeles: Certified Public Accountants Foundation for Education and Research, 1972), p. XVII.

tioners on educational matters, many of these appear to have been marred by too narrow a scope or by weak methodology.[38] In addition, few of these studies were concerned with management accounting and none is applicable to the RIA program; and

3. no formal effort has been made to collect representative survey data concerning the RIA program, and such an effort is desirable.

Exhibit 5 conceptualizes how a harmony between education and practice would operate. The relationships depicted in this Exhibit, while simplified, do portray a logical and practical sequence of steps to integrate accounting education and practice. One important input which is lacking in the RIA curriculum review process is representative input from practicing RIAs. Recently, SMA executives responsible for reviewing this educational program have expressed interest in obtaining information about the importance of various management accounting topics to practicing management accountants.

Purpose of Study

The purpose of this study is to determine and analyse the perceptions of practicing RIAs on the importance of

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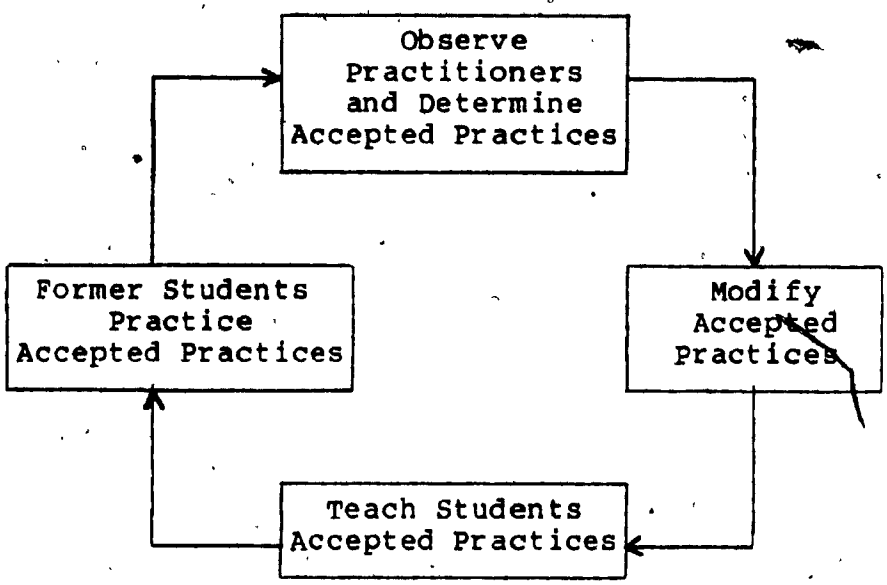
38/ For details, see Chapter 2.

Exhibit 5

The Relationship Between Education and Practice



Source: Robert S. Sterling, "Accounting Research, Education and Practice," Journal of Accountancy 136 (September, 1973): 47.

selected management accounting topics in meeting the responsibilities of their current employment. This information is provided in response to the need for research to help link the education and practice of management accounting. Specifically, the study is intended to provide information for assessments of:

1. the RIA curriculum;
2. the need for specialized educational modules in the RIA curriculum; and
3. the professional development needs of RIAs.

Significance of Study

The results of this study provide empirical evidence about the importance of management accounting topics to the current work experience of practicing RIAs and contribute towards a reduction in the gap between the practice and education of management accountants. This information may prove useful to SMA when making decisions about course content and curriculum revisions of the RIA program. Organizational response differences provide insight into the need for special educational programs devoted to a particular type of organization or industry. Position level and year of RIA designation response analyses provide information useful to SMA administrators and to management accountants for planning and selecting PD activities.

Limitations of Study

The respondents in this study were practicing RIAs who, in attaining the RIA designation, have successfully completed the RIA program and the practical experience requirements. Those members of a profession who have attained professional qualifications are generally very committed to their profession. In addition, they usually enjoy a higher status than the status given to others in the same profession without a professional designation. Because the results of this study represent the perceptions of practicing RIAs, these results may not be indicative of the perceptions

of management accountants in general but would represent the opinions of leaders in the field.

The results of this study provide information about the importance of selected management accounting topics to the current work experience of practicing RIAs. Current relevance of the various topics is important, but it is only one input to the decision-making process involving curriculum revisions or selection of courses. The amount of emphasis which current importance receives is dependent upon the individual reader's decision-making model. Obviously, the results of this study will be more relevant to some readers than to others. For that reason, the current researcher provides implications of the results, but conclusions regarding specific courses of action are necessarily left for individual interpretation.

Methodology

Population

The population for this study consists of all practicing RIAs in Canada, except those employed as educators. The population sample selected and the reasons for limiting the population to the practicing RIA group are discussed in Chapter 3.

Questionnaire Development and Distribution

The questionnaire used in this study consisted of two sections. Section one contained a list of 28 management accounting topics and a brief description of each topic. The respondent was requested to rate, on a scale of zero (no importance) to five (extremely important), the importance of each topic to his present work experience. Section two required the respondent to select the five topics which he considered to be the most important and to allocate a total of 100 points among them as an indication of their relative importance to him. The topic list and the brief topic descriptions were obtained from a study by Neal VanZante.[39] The current researcher reviewed a large number of questionnaire topics and related descriptions to ascertain their applicability to a study of RIAs in Canada. This evaluation included discussions with management accounting academics and practitioners and indicated that, except for minor changes in one topic description, the twenty-eight topics used by VanZante would be appropriate for the current study.

Studies relevant to this study are discussed in Chapter 2. Details of the questionnaire development and sample selection are discussed in Chapter 3.

39/ Neal R. VanZante, "A Survey of the Perceptions of Industrial CMAs on the Importance of Selected Management Accouting Topics" (Ph.D. dissertation, Oklahoma State University, 1976), pp. 8-22.

Each questionnaire was mailed with a short covering letter and an addressed, postage-paid return envelope. Second requests were mailed to those sample members who did not respond to the initial requests within the designated time period. All questionnaires and covering letters sent to addresses within Quebec were in both English and French.

The covering letters and questionnaires are included in the Appendices, and expanded discussions of sample selection and questionnaire distribution procedures are included in Chapter 3.

Analysis of Data

The response data were analyzed using the "Statistical Package for the Social Sciences"[40] at Concordia University Computing Centre. The analysis consisted of descriptive statistics and statistical tests. The output was analyzed to determine the perceived importance of the various topics to the entire group of respondents. Tests to evaluate for nonresponse bias were conducted. Further analysis was performed to examine differences in topic ratings by various sub-groups identified on the basis of respondents' industry classifications, accounting sectors and years of RIA designation. Details of the analysis used in this study are presented in Chapter 3.

40/ Norman H. Nie, et al., Statistical Package for the Social Sciences, Second Edition (New York: McGraw-Hill Book Company, 1975).

Organization of Study Presentation

Chapter II contains a literature review. In addition to a number of studies which provide assistance for the methodological development of this current study, twelve related studies are reviewed in detail. The VanZante study receives extensive discussion because of its similarity to the current study. Chapter III explains the methodology employed to achieve the objectives of this study. Included in Chapter III are discussions of the selection of the sample, the adoption and distribution of the questionnaires, the description of respondents and the analysis methods used.

Chapter IV presents the results of this study. The Chapter includes tabular presentations of the topic ratings and rankings by the entire group of respondents and by subgroups of respondents according to their organization types, position levels and the number of years since they received their RIA designations.

Chapter V includes a discussion of the implications of this study's results for the RIA and professional development programs of SMA. The Chapter concludes with the author's recommendations for further research.

Chapter 2

REVIEW OF RELATED LITERATURE

Introduction

This Chapter contains the results of the review of literature concerning opinion studies and education in accounting. This review covered the period from 1960 to date plus some selected references to earlier works. The review was based on an extensive search of standard reference indexes and abstracts[1] and concentrated mainly on the literature of Canada and the US, with selected items from the UK.

The purpose of the search was to determine the extent of previous research in accounting and education which could aid in the selection of the research process to follow and

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1/ Reference was made to the following indexes and abstracts:
Accountants' Index
Bibliography of Publications of University Bureaus of Business and Economic Research
Bibliography of Research Studies in Business Education
Business Education Index
Business Periodicals Index
Canadian Business Periodicals Index
Canadian Education Index
Commerce Clearing House Accounting Articles
Comprehensive Dissertation Index (1861-1973)
Comprehensive Dissertation Index (1973-1976)
Dissertation Abstracts International
Educational Resources Information Center, Educational Documents Index
Index of Doctoral Dissertations International
New York Times Index

also provide insight into problems which might be encountered during the performance of the study. Although the review disclosed no research identical to this present study, it did serve to locate a number of related studies for detailed examination. Studies which gathered opinion data on accounting related problems from professional accountants using questionnaire surveys were of special interest. In particular, those studies which also dealt with accounting educational matters received the most attention.

Business Research Incorporating Attitude Measurement

As shown in Exhibit 6, more dissertations incorporating the measurement of attitudes and perceptions were completed during the last five years in the business and commerce category than were recorded for the previous 112 years.

This recent increase in business studies involving opinion measurement reflects the application of a methodology which has become well established in the social sciences, particularily in sociology and psychology. Until the late 1960s business opinion measurement studies dealt almost exclusively with research in the disciplines of organizational behaviour and marketing. However, during the last ten years there has been a pronounced increase in the application of opinion study methodology to the discipline of accounting.

Exhibit 6

Commerce and Business Dissertations
Incorporating the Measurement
of Perceptions or Attitudes

Dissertatons incorporating the measurement of:	1861-1972	1973-1977
Perceptions	66	84
Attitudes	96	87
Totals	162	171

Sources: Comprehensive Dissertation Indexes 1861-1972 and 1973-1977.

Most of the opinion study research performed in accounting can be classified either as research about attitudes to accounting information or disclosure, or as research to establish or evaluate the relationship between education and practice. Twenty six studies are discussed in this Chapter in these four related groupings:

1. Research into Opinions about Accounting Information;
2. Research into the Education of Public Accountants;
3. Research into Specific Curricula Components; and
4. Research into Management Accounting Education.

Research into Opinions about Accounting Information

Research studies in this category are reviewed because of the pertinence of their methodologies and the nature of the sampled populations to the present study, even though their individual purposes were generally different from that of this study. All these studies used mailed questionnaires to gather empirical evidence concerning opinions about accounting information or some aspect of it. Exhibit 7 contains summarized information about the ten studies selected as representative of research in this category.

Dirsmith, Falk et al. and Gallagher[2] conducted studies motivated by the idea that user needs should be an important ingredient in determining the boundaries of accounting. Dirsmith selected his (non-random) sample from four diverse source groups attempting to include only individuals with an electronics industry affiliation, while Gallagher's respondents were all employed by the same company. The different response rates reported by Dirsmith (16.1%) and Gallagher (73%) might seem to indicate an inverse relationship between

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2/ Mark W. Dirsmith, "Attitudes of Selected Decision Makers Towards Information Provided by the Financial Accounting System" (Ph.D. dissertation, Northwestern University, 1975); Haim Falk, Bruce C. Gobdel and James H. Naus, "Disclosure for Closely Held Corporations" Journal of Accountancy 142 (October, 1976): 85-89; Charles A. Gallagher "Measurement and Analysis of Managers' Perceptions of the Value of Selected Management Information" (D.B.A. dissertation, Florida State University, 1971).

Exhibit 7

Selected Research into Opinions about Accounting Information

Researcher (Publication)	Year Published	Summary of Purpose	Population (Sample Size)	Response Rate
1. Adelberg (Ph.D. dissertation)	1977	To test the comprehensibility of accounting statement footnotes	CPAs, CFAs and BLO trainees (3247)	15.5%
2. Asebrook and Carmichael (Journal of Accountancy)	1973	To measure existing attitudes concerning possible publication of forecasts	CPAs, CFAs and FEIs. (2400)	36%
3. Dirsmith (Ph.D. dissertation)	1975	To examine and explain the attitudes of selected decision makers to financial accounting information	Selected electronics managers, CPAs, CFAs and investors (1613)	16.1%
4. Falk, Gobdel and Naus (Journal of Accountancy)	1976	To obtain data on the information needs of bank loan officers	BLOs (950)	25%
5. Gallagher (D.B.A. dissertation)	1971	To develop and test a methodology for examining certain management information reports	One unidentified company (103)	73%
6. Melcher (D.B.A. dissertation)	1977	To study perceptions about the value of Accounting Principles Board Opinion No. 20	CPAs, CFAs and selected executives (1000)	25.7%
7. Paperman (Ph.D. dissertation)	1976	To study perceptions about the value of human resources accounting information	Dayton, Ohio Chapter CPAs (480)	34.6%
8. Sheriff (Ph.D. dissertation)	1976	To investigate accountants' attitudes to current value financial statements	South Carolina "accounting societies" members (712)	31%

Exhibit 7 (continued)

Selected Research into Opinions about Accounting Information

Researcher (Publication)	Year Published	Summary of Purpose	Population (Sample Size)	Response Rate
9. Stiner (Ph.D. dissertation)	1976	To explore the attitudes of CPAs towards social accounting	CPAs (1557)	43.4%
10. Van der Weele (Ph.D. dissertation)	1972	To evaluate the need for continuing education for CPAs	State of Wisconsin CPAs (1532)	58%

SOURCES: Refer to the entries, by author, in the bibliography.

Notes: 1. CPA is a Certified Public Accountant
2. CFA is a Chartered Financial Analyst
3. BLO is a Bank Loan Officer
4. FEI is a member of Financial Executives Institute

diversity of population and response rate, but such a conclusion would be too simplistic. Both questionnaires were lengthy, however, respondents to Gallagher's questionnaire were probably more interested in his survey and this higher interest abetted the response rate. Falk et al. obtained their sample from the 1974 Robert Morris Associates Member Bank List.[3] This group was more cohesive than that selected by Dirsmith and the questionnaire was less demanding than the other two. However, the member banks were spread geographically and Falk et al. achieved only a 25% usable response rate.

Adelberg[4] selected a more limited purpose than those of the three previous studies: to test the clarity of narrative disclosures. He selected a large, potentially representative sample, but he achieved a relatively low response rate, especially for the CPAs (11.5%) and the CFAs (10.7%) in his sample. Adelberg did not report any attempt to

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3/ Falk et al., "Disclosure for Closely Held Corporations", reports on one respondent group (bank loan officers), however, CPAs were also surveyed. See, by the same authors, "Banker and CPA Preferences in Financial Reporting for Closely Held Corporations", January, 1976. (Typewritten)

4/ Arthur Harris Adelberg, "Narrative Disclosures Contained in Financial Reports: An Empirical Evaluation of their Understandability" (Ph.D. dissertation, City University of New York, 1977).

measure nonresponse bias nor did he give any clues why the response was low.[5]

The remaining six studies from Exhibit 7 deal with fairly specific, current concerns of the accounting profession[6]:

1.	Asebrook and Carmichael	-Publication of forecasts
2.	Melcher	-Accounting Principles Board Opinion No. 20
3.	Paperman	-Human resources accounting
4.	Sheriff	-Current value accounting
5.	Stiner	-Social accounting
6.	Van der Weele	-Professional development

These six studies are of interest because they all sought the opinions of accounting professionals in order to

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[5]/ Adelberg states: "The response rate for Certified Public Accountants and Certified Financial Analysts was low; nevertheless it was considered excellent for a mail survey." Ibid. p. 166.

[6]/ Richard J. Asebrook and D.R. Carmichael, "Reporting on Forecasts: A Survey of Attitudes", Journal of Accountancy 136 (August, 1973): 38-48; Trini U. Melcher, "An Empirical Investigation into the Effectiveness of Accounting Principles Board Opinion No. 20" (D.B.A. dissertation, Arizona State University, 1977); Jacob B. Paperman, "The Accountant's Perception of the Usefulness of Human Resource Accounting Information in Published Financial Statements" (Ph.D. dissertation, University of Cincinnati, 1976); Jimmy Don Sheriff, "An Empirical Investigation of Attitudes Toward Current Values Among Accounting Groups in South Carolina" (Ph.D. dissertation, University of Georgia, 1976);Frederic M. Stiner, Jr., "The Attitudes of Certified Public Accountants Towards Social Accounting: A Survey of National and Nebraska Opinion" (Ph.D. dissertation, University of Nebraska, 1976); Ray Van der Weele, "An Evaluation of the Need for Continuing Education and Professional Development for Certified Public Accountants" (Ph.D. dissertation, University of Wisconsin-Madison, 1972).

provide empirical evidence about accounting matters. These studies used questionnaires incorporating numbered scales in categories from "strongly agree" to "strongly disagree" based on Likert's scaling technique[7] and used the resulting respondent data to evaluate hypotheses. Sheriff's study was one exception where opinion differences among groups of accountants were analyzed rather than only treating respondents as one homogeneous group. Three of these studies (Paperman, Sheriff and Van der Weele) were limited to local city or state populations from which samples were chosen.

These ten selected studies indicate that opinion survey techniques can be appropriately and meaningfully applied to the empirical study of accounting and accountants. They indicated no special methodological problems in addition to those normally associated with attitude surveys.[8] A common limitation, except for Gallagher's study, was the incidence of low response rates.

The response rates for the studies in Exhibit 7 range from a low of 15.5% to a high of 73%, with a weighted-average response rate of 30.5% for all ten studies. Generally, the larger sample sizes had lower response rates, but this tendency is not shown consistently. These response

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7/ See Marvin E. Shaw and Jack M. Wright, Scales for the Measurement of Attitudes (New York: McGraw-Hill Inc., 1967) p. 24 for a discussion of Likert's scaling technique.

8/ These problems are discussed in detail in Chapter 3.

rates indicate that careful attention to survey methodology is necessary to obtain a high response rate from professionals.

Research into the Education of Public Accountants

Exhibit 8 provides a listing of the seven studies selected as representative in this section. These studies are reviewed because they compare the practice of public accounting in some manner with accounting education. Thus, while not directly related to the current study, these seven studies represent work which is relevant to its development.

The Horizons Study

The most comprehensive and influential research in this group is the study of US public accounting practice by Roy and MacNeill.[9] The Carnegie Corporation and the American Institute of Certified Public Accountants (AICPA) cooperated in 1963 to create the "Commission to Study the Common Body of Knowledge for Certified Public Accountants" and Horizons was the Commission's report to its sponsors. The study concentrated on the education needs of a beginning CPA.

Roy and MacNeill collected evidence for Horizons from four sources:

9/ Roy and MacNeill, Horizons.

Exhibit 8

Selected Research into the Education of Public Accountants

Researcher (Publication)	Year Published	Summary of Purpose	Population (Sample Size)	Response Rate
1. Jacoby (D.B.A. dissertation)	1972	To describe an educational program for public accountants	Michigan State CPAs (200)	63.5%
2. Keller (D.B.A. dissertation)	1969	To examine accounting education in California	California State University Placement officers (43), accounting faculty (286), CPAs (1720) and staff accountants(301)	39.1%
3. Lake (D.B.A. dissertation)	1977	To determine the importance of selected academic subjects to beginning CPAs	CPAs in the Southern States Region (987)	50.2%
4. Roy and MacNeill (American Institute of CPAs)	1967	To determine the common body of knowledge necessary for beginning CPAs	Public accounting firms (3397)	28%
5. Wilcher (Ed.D. dissertation)	1970	To determine the importance of selected accounting concepts	Junior college accounting instructors in five southern states (80)	87.5%
6. Whisenhunt (Ed.D. dissertation)	1963	To determine the extent of correlation between accounting instruction and professional examinations	NA	NA
7. Whitham (Journal of Accountancy)	1974	To examine the importance of certain educational topics to new CPAs	CPA firm proprietors and managing partners (546)	52.6%

SOURCES: Refer to the entries, by author, in the bibliography.

Notes: 1. CPA is a Certified Public Accountant
2. NA indicates "not applicable"

1. questionnaires to a sample of public accounting firms;

2. college catalogues;

3. a ranking of academic subjects by selected "knowledgeable persons"; and

4. interviews with "knowledgeable persons".[10]

Although Horizons achieved a high degree of acceptance by accounting educators and practitioners and significantly influenced accounting education in general[11], the study had certain methodological shortcomings relating to the collection of evidence. First, the low overall response rate (28%) for the questionnaire sent to public accounting firms along with the very different response rates from firms of different sizes and geographical regions indicate a significant source of bias. Second, the college catalogue information could not be expected to provide unbiased information.[12]

The third and fourth information sources were "knowledgeable persons" selected from a list of more than 2600 persons suggested by CPA firms and various organi-

10/ Ibid., p. 9.

11/ Doyle Z. Williams, Accounting Education: A Statistical Survey, 1972-73 (New York: American Institute of Certified Public Accountants, 1974) p. 4.

12/ Roy and MacNeill recognized this difficulty: "It should be remembered that what educators feel an accounting major should learn in college is not necessarily the same as what a prospective CPA should know." Horizons p. 4.

zations and individuals. The sample selected from this list had rather unique attributes which make the value of the resulting information questionable. The authors also compounded the question of the value of the rankings of academic subjects provided by these persons by their own decision not to define their meaning of the term "importance".[13] In the case of the interviews, Roy and MacNeill did not attempt to give any structure or quantification to the responses but chose to treat them informally. Thus, the recommendations were those of the authors themselves and they did "not know the extent to which these recommendations have been influenced by others..."[14]

Finally, although more a fault of those who later interpreted the study, Roy and MacNeill's results were treated as applicable to all accounting education even though they ignored the different requirements of public and management accountants.[15]

13/ Ibid., p. 176.

14/ Ibid., p. 171.

15/ Buckley, "The Myth of the Compleat Accountant", p. 43.

The Whitham Study

Whitham conducted a study to reexamine some of the statements and recommendations made in Horizons.[16] After analyzing the results of his study of CPA firm owners and managing partners, he concluded that some of the subject matter proposed in Horizons was not needed by a beginning CPA. Specifically, Whitham lists these courses which could be reduced or eliminated from the recommended accounting curriculum:

1. intermediate economic theory;
2. production or operational systems;
3. business social environment;
4. marketing;
5. organization behaviour; and
6. quantitative methods.[17]

These courses, with the exception of the first, seem more related to the education of managerial than to that of financial accountants.

16/ Robert B. Whitham, "Five Years of University Education Not Required" Journal of Accountancy 138 (September, 1974) pp. 93-96.

17/ Ibid., p. 96.

The Whisenhunt Dissertation

Whisenhunt's[18] study preceeded Horizons by four years but it is the only study in Exhibit 8 which did not employ survey data. His methodology involved an analysis of literature and CPA examinations to isolate elements considered essential to the preparation of public accountants. Then these elements were used to analyze textbook content. The high degree of interrelationship which exists between accounting literature and accounting textbooks raises questions about the purpose of Whisenhunt's study. Perhaps because of this weakness, his conclusions were very shallow:

1. the education of accountants should not be narrow;
2. accountants' responsibilities necessitate that they understand society;
3. technical ability is essential to the practice of accountancy; and
4. research is needed about the accounting curriculum.

Each of the remaining four studies in Exhibit 8 examined accounting education by surveying respondents in one particular state or region of the US. Data collected from limited geographical or jurisdictional areas raise concern about the applicaton of the related studies' conclusions to other areas.

18/ Jack Wayne Whisenhunt, "Selected Elements of Accounting and Business Law Essential to the Preparation of Accountants" (Ed.D. dissertation, University of Oklahoma, 1963).

The Jacoby Dissertation

Jacoby[19] surveyed 40 educators and 160 CPAs in the state of Michigan to describe an educational program for universities and colleges in Michigan suitable for career public accountants. He asked each respondent to rank forty-seven course topics in order of importance from highest to lowest.[20] His findings are generally in accordance with Horizons and his recommendations were outlined in "areas of study" rather than in the form of specific course titles.[21] This latter choice probably reflects Jacoby's recognition of the limitations of the university catalogue information he collected, in that course descriptions are usually vague and the meaning of course titles at various universities is inconsistent.

The Keller Dissertation

Keller[22] conducted a study to examine accounting education in California. He determined that accounting acade-

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19/ Louis Conrad Jacoby, "A Model of Recommended Education for the Future Growth of Certified Public Accountants" (D.B.A. dissertation, Michigan State University, 1972).

20/ Jacoby's survey methodology and course topics were taken from Horizons, Ibid., pp. 49-52.

21/ Ibid., pp. 170-171.

22/ Donald Eugene Keller, "A Critical Evaluation of Some Aspects of Educating Accountants for the Public Accounting Profession in California" (D.B.A. dissertation, University of Southern California, 1969).

mics favoured graduate study for CPAs more strongly than did practitioners. He recommended that:

1. more coverage of communications and electronic data processing topics be given in accounting education;
2. accounting education programs be decided jointly by practitioners and academics; and
3. additional research be done to determine educational programs for areas other than public accounting.[23]

However, Keller's study did not include the entire range of studies which usually comprise the accounting curriculum and his respondents were not randomly selected.

The Lake Dissertation

Lake[24] surveyed CPAs in the southern states region to determine the differences in topic importance as perceived by CPAs in firms of different sizes.[25] He defined "importance" as "the contribution of an academic subject to the beginning CPA's (1) ability to serve clients competently and (2) ability to grow with the profession."[26] This defi-

23/ Ibid., p. 3.

24/ Robert C. Lake, "Importance of Selected Academic Subjects as Perceived by Practicing CPA's in the Southern States Region of the National Association of State Boards of Accountancy" (D.B.A. dissertation, Louisiana Tech University, 1977).

25/ Lake called his three classes of respondent firms ("small", "middle-sized" and "national") "subcultures". Ibid., p. 114.

26/ Ibid., pp. 8-9.

nition of "importance" is open to a wide latitude of interpretation by respondents. Another limitation of Lake's study is in his approach to sample selection. Although his sole analysis of respondent attitude differences is by respondents' firm size, he selected his total sample randomly without attempting to stratify the sample (as, for example, was done in Horizons) to help to ensure adequate representation from each respondent class.

The Walcher Dissertation

Walcher[27] obtained attitude ratings from junior college accounting instructors in five southern states toward the importance of selected accounting concepts in their teaching. He then compared the instructors' evaluations with those of eight "outstanding" educators from universities in the same five states. He found, as might be expected, that the two groups were mostly in agreement on the importance of each topic. Generally, the "outstanding" educators placed greater importance on managerial accounting concepts than the college accounting instructors did. In addition, the instructors' ratings seemed unaffected by such variables as size of college, accounting working experience or teaching experience. Walcher concluded that this

27/ Olin Dean Walcher, "The Accounting Concepts Being Taught in the Accounting Principles Courses in the Junior Colleges of the Southern Great Plains States", (Ed.D. dissertation, Oklahoma State University, 1970).

apparent homogenity of the instructors' attitudes could be attributable to the influence of the accounting text books upon the instructors' views.

Walcher is not clear why he expected the two educators' groups to differ significantly in their views on the importance of accounting topics to their courses. His population was limited to a particular region and his selection of "outstanding" educators is subject to significant bias. His respondent groups, seventy instructors and eight educators, were also too small to permit meaningful comparisons.

Summary

The seven research studies discussed in this section surveyed and compared the practice of public accounting with accounting education. Their results show varying response rates from public accountants to surveys of this type. Each study shows that there is difficulty in relating the practice of accounting with accounting education in a direct, tangible manner and, thus, the studies' findings and recommendations tend to be stated in general terms which necessarily leave the readers to make their own inferences. Those studies which used university calendar course descriptions to identify accounting curricula were limited because of the uncertain and inconsistent nature of calendar information. Finally, several studies were restricted because they relied on opinions gathered from a limited geographical

area. Horizons was an exception to this because opinions were sought from all segments of the public accounting profession. However, the authors of Horizons used this information subjectively and reported only their personal recommendations.

Research into Specific Curricula Components

Exhibit 9 lists the details of four studies which provide information about the relationship between some particular accounting course or topic and professional practice. These studies also relate to public accounting practice in the US, but they are less general than the studies from Exhibit 8, discussed in the previous section.

The Brown Dissertation

Brown[28] conducted a study to determine and compare the depth of coverage of professional ethics topics which accounting educators believed necessary, with that depth of coverage included in college auditing courses. Not surprisingly he found that auditing course coverage of ethics topics generally conformed to the wishes of accounting educators. Brown's questionnaires used a scale of one, no

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28/ Howard J. Brown, "Professional Ethics in Required Auditing Courses in the Education of Public Accountants" (Ph.D. dissertation, New York University, 1975).

Exhibit 9

Selected Research into Specific Curricula Components

Researcher (Publication)	Year Published	Summary of Purpose	Population (Sample Size)	Response Rate
1. Brown (Ph.D. dissertation)	1975	To examine the professional ethics topics taught in college auditing courses	U.S. educational institutions with four or five year degrees in accounting. (200)	63%
2. Cerullo (National Public Accountant)	1977	To survey and evaluate the present computer knowledge of public accountants	New York State CPAs. (550)	49%
3. Kensky (Ed.D. dissertation)	1970	To determine the understanding of EDP necessary for undergraduates.	Public accounting firms (53) and educational institutions (8) in the Philadelphia area	79%
4. Listro (Ph.D. dissertation)	1976	To determine the extent of academic preparation for accounting positions in nonprofit organizations.	CPAs and chief accountants serving nonprofit organizations. (400)	79.5%

SOURCES: Refer to the entries, by author, in the bibliography.

Notes: 1. CPA is a Certified Public Accountant

coverage, to six, extensive coverage, to obtain ratings on fifty-six topics related to professional ethics. Brown's recommendations were very weak and the most significant contribution of his study was the list of ethics topics which he developed for his questionnaire.

The Cerullo Study

Cerullo[29] reported his study which was intended to assess the adequacy of practicing CPAs' knowledge about computers. He sent his questionnaire, asking each respondent to indicate his present level of computer related knowledge, to a random sample of 550 New York CPAs. Cerullo used a five point scale for his questionnaire to indicate knowledge level: expert, good working, average, slight and none. He found that "...no group of respondents was close to meeting the recommendations made ten years ago by Roy and MacNeill in Horizons for a Profession."[30] Cerullo also found that there was a strong correlation between the extent of knowledge and respondent's years of public accounting experience in that, the longer a public accountant had been practicing, the less extensive was his computer knowledge. In particular, in almost all the computer knowledge areas, respondents

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29/ Michael J. Cerullo, "Computer Knowledge and Expertise of Public Accountants" National Public Accountant 22 (December, 1977) pp. 32-38.

30/ Ibid., p. 35.

with five or fewer years experience had a "much higher" level of knowledge than all other respondents.[31]

Cerullo concluded that there was a need for public accountants to attend university or professional development courses about computers and their applications.

A limitation of this study, in addition to the regional nature of the sample, is that Cerullo published his data only as percentages of respondents in each category with no consideration of statistical analysis.

The Kensky Dissertation

Kensky[32] collected opinions from respondents in public accounting firms and educational institutions in the Philadelphia area in an attempt to determine what understanding of electronic data processing (EDP) concepts should be included in the undergraduate accounting curriculum. This question had been addressed on a much more comprehensive scale as part of the study reported in Horizons.[33] Nevertheless, Kensky did find that, while educators felt EDP curriculum content was adequate, accounting practitioners did not agree. While his study was limited in the scope of its

31/ Ibid., p. 34.

32/ Harry Charles Kensky, "A Study of the Education and Training of Accountants in Electronic Data Processing in the Philadelphia Area." (Ed.D. dissertation, Temple University, 1970).

33/ Roy and MacNeill, Horizons, pp. 212-213.

purpose and population, this finding is consistent with other reports about the existence of an educator-practitioner gap in accounting education. Kensky concluded that there was a need to improve the EDP knowledge of both educators and practitioners.

The Listro Dissertation

Listro[34] assessed the adequacy of college accounting programs to provide instruction in "principles for nonprofit organizations" (NPOs). From a review of the literature he developed a list of basic accounting "principles" relating to NPOs. Then a questionnaire was circulated to a non-random sample of accountants with work experience relating to NPOs, asking them to indicate their perceptions on the importance of 55 "principles" considered basically applicable to NPO accounting work.

The sample was made up of 200 CPAs serving NPOs and 50 chief accountants from each of four groups of NPOs: hospitals, voluntary organizations, public schools, and colleges and universities, for a total sample of 400 accountants. The group of 200 chief accountants would likely be more management accounting oriented than the CPAs. Listro's statistical analysis showed that when the importance of the

34/ John Peter Listro, "Accounting Principles of Nonprofit Organizations and their Status in College Education" (Ph.D. dissertation, University of Connecticut, 1976).

"principles" to respondents' current work was considered, the groups differed significantly on 30 of the total 55 principles.

Listro also examined college textbooks to evaluate their extent of coverage of NPO accounting "principles". He concluded that the growing importance of the NPO sector of the economy was not reflected in the amount and type of coverage in the instructional materials he examined.

Summary

The four studies discussed in this section attempt to increase knowledge about the relationship between specific accounting topics and their importance to accounting education and practice. Conceptually, given sufficant research on the various topics comprising the accounting curriculum, a total assessment of the relationship between education and practice could be made. However, the accounting curriculum will probably change over time and studies performed in different years may not provide compatible findings. In addition, three of these four studies make no attempt to provide insight into the needs of different segments of the accounting profession. The fourth study provides evidence that these segments may have different educational needs.

Research into Management Accounting Education

The five studies listed in Exhibit 10 were directed at management accounting education and have particular relevance for the current study. Although they differ in orientation from the previous studies which were oriented to public accounting education, four of the current studies also rely on CPAs as a major component of the respondent population. This concentration on the CPA population, of course, reflects the lack of a U.S. professional organization representative of management accountants. As is noted where appropriate in this section, each of the studies does attempt to mitigate the orientation to public accounting bias in the samples by bringing in other accounting sector representation. However, these attempts to broaden the samples were rarely sufficient.

The Barker Dissertation

Barker's[35] study was prompted by the establishment of the CMA program in the US. He used a questionnaire to gather opinions from accounting educators, management accountants and public accountants on their perceived

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35/ Robert Lewis Barker, "Certification of Management Accountants -- A Study of the Evolution, the Underlying Body of Knowledge and the Impact on Accounting Practice and Education" (Ph.D. dissertation, University of Alabama, 1974).

Exhibit 10

Selected Research into Management Accounting Education

Researcher (Publication)	Year Published	Summary of Purpose	Population (Sample Size)	Response Rate
1. Barker (Ph.D. dissertation)	1974	To assess the extent to which management accounting is a profession, to delineate its body of knowledge and to compare the latter with accounting curricula	Accounting educators, executives, CPAs and CFAs. (1039)	44%
2. Carney (Ph.D. dissertation)	1976	To provide practitioner information about cost accounting topics for accounting educators' curricula decisions and to evaluate CPA examinations.	Accounting educators and CPAs. (459)	50.5%
3. Deakin and Summers (Accounting Review)	1975	To determine the perceptions of practitioners on the usefulness of various management accounting practices.	Texas CPAs, AAAs, FEIs with corporate related employment and selected University of Texas alumni. (250)	67%
4. Knight (Ed.D. dissertation)	1976	To compare the topics required for education in financial and managerial accounting.	Controllers of "Fortune 500" firms and CPAs (300)	53.7%
5. VanZante (Ph.D. dissertation)	1976	To determine and analyze the perceptions of industrial CMAs on the importance of selected management accounting topics.	CMAs employed in industrial accounting positions (219)	94%

SOURCES: Refer to the entries, by author, in the bibliography.

Notes: 1. CPA is a Certified Public Accountant
2. CFA is a Chartered Financial Analyst
3. AAA is a member of the American Accounting Association
4. FEI is a member of Financial Executives Institute
5. CMA is a holder of the Certificate in Management Accounting

importance of 79 items. The questionnaire had a three-point scale: "no knowledge" (0), "general knowledge" (1) or "extensive knowledge"(2) needed.

Barker developed his 79 management accounting topics from an examination of the following:

1. CMA literature from the Institute of Management Accounting;
2. CPA examination topic information;
3. the Horizons study; and
4. CIA topic information.[36]

Barker does not explain why he did not also review accepted management accounting textbooks[37] in order to complete and evaluate his list. Barker's questionnaire also contained no definition of his intended meaning of each topic, leaving interpretation completely up to each respondent. For example, in a section headed "periodic reporting for internal and external purposes" one of five topics is "12. responsibility reporting". Without a common definition provided to all respondents, this topic is open to a variety of interpretations.

36/ CIA is the "Certified Internal Auditor" designation of the Institute of Internal Auditors.

37/ T.S. Kuhn in his seminal work The Structure of Scientific Revolutions (Chicago: The University of Chicago Press, 1962) in the preface, p. X, states that the knowledge of a "community of practitioners" can be assessed from its textbooks, lectures and laboratory exercises.

In addition to the problem of ambiguity, Barker's questionnaire seems in some areas excessively detailed. His section "economic theory" includes thirteen individual topics. There is also overlap between topics, for example the questionnaire includes the following as separate topics:

"Theories of group behaviour"

"Hierarchy of human needs and theories of motivation"

"Elements of job satisfaction"

"Management styles"

The questionnaire topics are also not of equal intensity or scope. For example compare the extensive topics "long-range forecasting", or "production management concepts" with the more restricted topics "SEC filing requirements" or "Linear programming". Such an illogical presentation of topics could negatively influence respondents' attitudes toward completing the questionnaire.

Barker's sample of 1039 individuals included 300 respondents drawn from "non-accountant" populations (accounting educators, CFAs and personnel managers). The 739 "accountant" respondents[38] received the management accounting topics portion of his questionnaire while the

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38/ This group included the controllers or chief finance officers of "Fortune's 500", accounting academicians (139) and public accountants selected non-randomly from three sources (100). Barker, "Certification of Management Acountants", p. 13.

other respondents did not. An examination of Barker's target populations shows the non-random nature of his selection and, thus, leaves his questionnaire results open to significant bias, even ignoring the bias possible from the substantial number of nonrespondents.

Barker also limited his reporting of questionnaire data to percentage response per question and weighted averages of responses for each of the three "accountant" groups. He did not report the use of any statistical methods even though such analysis could have increased the information about differences in the responses by group of respondents.

The Carney Dissertation

Carney[39] obtained ratings on 50 "cost accounting" topics from a sample of 36 accounting educators and 196 CPAs in Oregon state. To prepare his list of topics, Carney reviewed seven textbooks all of which have "cost accounting" as part of their titles. However, he is not clear on how or why he delineated "management accounting" from "cost accounting". One of his seven source "cost accounting" texts is one of the most authoritative texts on cost and management accounting wherein the author maintains that

39/ Keith Thomas Carney, "The Importance of Selected Cost Accounting Topics to Careers in Public Accounting" (Ph.D. dissertation, University of Northern Colorado, 1976).

"cost accounting" is synonomous with "management accounting".[40] In any case, his list of topics was excessively long because he included many topics which were narrow, overlapping divisions of cost accounting concepts which would have been more effectively treated with fewer segregations.[41] Carney compounded this limitation by including definitions for only 24 of his 50 topics.

Another major limitation of Carney's questionnaire stems from his instructions for candidates to rate each topic in importance "for inclusion in a course in cost accounting designed to meet the career needs of prospective certified public accountants."[42] The "career needs" would be given quite different interpretations by various respondents. Carney provided the following rating scale for each topic on his questionnaire:

1. Not important, exclude from the course
2. Include, but give it only nominal attention
3. Include, and give it moderate attention
4. Include, and give it considerable attention
5. Include, and give it maximum attention[43]

40/ Horngren, Cost Accounting: A Managerial Emphasis, p. 4.

41/ For example he includes separate topics for job order costing and process costing but also includes preparation of cost of production reports as a seemingly separate topic. Carney, Selected Cost Accounting Topics, pp. 96-97.

42/ Ibid., p. 109.

43/ Ibid., p. 42.

Before calculating the mean ratings on each topic, Carney should have adjusted the questionnaire ratings to a 0 to 4 scale because a rating of 1, "not important" is essentially a rejection of the topic.[44]

Carney selected nonparametric statistical methods to analyze the questionnaire rating by sub-groups of respondents.[45] However, he limited this application to a total assessment of inter-group ranking differences on all topics rather than also examining for significant intergroup differences on individual topics. Carney found no statistically significant differences in the rankings between his two main groups, accounting educators and CPAs, nor among his various sub-groupings of CPAs.

The Deakin and Summers Study

Deakin and Summers[46] conducted a study to determine the perceptions of management accountants on the usefulness of various management accounting topics in their work expe-

44/ Shaw and Wright, Scales for the Measurement of Attitudes, pp. 24-25.

45/ Carney simply assumed that his data were not suited to parametric tests based on Sidney Siegel, Nonparametric Tests for the Behavioural Sciences (New York: McGraw-Hill, Inc., 1956) p. 26. As discussed in Chapter 3, a more thorough evaluation is required.

46/ Edward B. Deakin, III and Edward L. Summers, "A Survey of Curriculum Topics Relevant to the Practice of Management Accounting". Accounting Review 50 (April, 1975): 380-383.

riences. They chose a sample of 250 subjects selected at random from among the corporate-affiliated members of the Texas CPA Society, accountants performing management advisory services in large CPA firms, AAA members with Texas corporate addresses, Beta Alpha Psi alumni of the University of Texas at Austin and members of the Texas FEI chapters. They achieved a response rate of 67% to their questionnaire.

Deakin and Summers selected thirty-nine topics chosen from the indexes in several management and cost accounting texts and reviewed in discussions with a small group of management accountants. The questionnaire asked respondents to rate each topic on a seven-point scale in its importance to their present work experience. The topical list consisted of a mixture of topics including broad subject matter eg., "performance evaluation", "internal control" along with more narrowly based topics, eg., "learning effect", "joint cost analysis". Respondents indicated in follow-up interviews that they downgraded the importance of narrowly based topics because they perceived them as "tools for the accomplishment of other topic areas..."[47]

Deakin and Summers found differences in the rankings among the different occupational groups composing their sample. The greatest number of differences were between the ratings of the management advisory services CPAs and those

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47/ Ibid., p. 382.

of the FEI group. Deakin and Summers concluded that the curriculum implications of their study "need to be developed in conjunction with other influences."[48]

The Knight Dissertation

Knight[49] set out to identify the similarities and differences in the topics required for financial and managerial accounting and to provide data which could be used by accounting educators for evaluating accounting curricula. He selected a sample of 150 CPAs from the 1974 AICPA "List of Members" and 150 controllers from the list of Fortune's 500 largest industrial corporations. He obtained a response rate of 44.7% from the CPAs and 62.7% from the industrial controllers, for an overall response rate of 53.7%.

Knight used a list of 72 accounting topics from an advance copy of an American Accounting Association (AAA) 1976 report.[50] While the AAA topic listing is comprehensive it is very detailed, for example five separate topics are provided for "conventional valuation bases". Knight also omitted the descriptive headings incorporated into the

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48/ Ibid., p. 383.

49/ Royal Edwin Knight, "A Rating of Topics with Implications for Financial and Managerial Curricula (Ed.D., dissertation, University of Northern Colorado, 1976).

50/ American Accounting Association, "Report of the 1973-74 and 1974-75 Committees on Professional Examinations" Accounting Review, Supplement to Volume XLXI, pp. 1-37.

AAA listing "to eliminate any bias that could have been attached to the headings by the respondents".[51] The deleted headings in fact assist in clarifying the topical meanings, eg. "External Financial Reporting" is the heading of a group which includes the five "convention value base" topics. Thus, omission of the descriptive headings increased, rather than reduced the risk of bias.

Knight investigated the data for significant differences between the two main respondent groups and found that their ratings differed for 44 of the 72 topics, with 24 of the topics rated higher by controllers than by CPAs.[52] Generally the controllers rated topics classified in the AAA groupings as "management accounting", "business applications of quantitative methods", "economics and business finance" and "organizational theory and behavioural science" higher than CPAs did. However, Knight concluded that none of the 72 topics should be excluded from an accounting curriculum, while he recommended that further study be conducted to determine what form of specialization accounting curricula should take.

51/ Knight, "A Rating of Topics" pp. 36-37.

52/ Knight used the t-test to examine for statistically significant differences between group means. Knight does not mention any procedures followed to determine that this parametric test was applicable to his data. Lacking such confirmation he should have chosen a statistical analysis method which has less restrictive assumptions about the data under consideration. These requirements are discussed in detail in Chapter 3.

The VanZante Dissertation

VanZante[53] conducted a study to determine and analyze the perceptions of industrial CMAs on the importance of selected management accounting topics to the respondents' current work experience. This study, in common with the Deakin and Summers study, was prompted by the then current introduction of the CMA program.

VanZante developed a basic list of 49 management accounting topics from five primary sources:

1. Deakin and Summers list of management accounting topics;
2. CMA program information;
3. Krogstad and Harris list of accounting "subject areas" and their related topics;
4. American Accounting Association list of 72 accounting topics[54]; and
5. A content analysis of the first four CMA examinations.

This basic list was then condensed from 49 topics into 27 topics by combining similar basic topics in order to include approximately the same breadth of subject matter

53/ Neal Roger VanZante, "A Survey of the Perceptions of Industrial CMAs on the Importance of Selected Management Accounting Topics" (Ph.D. dissertation, Oklahoma State University, 1976).

54/ Deakin and Summers, "A Survey of Curriculum Topics", p. 381; Institute of Management Accounting, "Certificate in Management Accounting: 1976 Announcement" pp. 5-9; Jack L. Krogstad and John K. Harris, "The CMA Examination: A Content Analysis", Management Accounting 56 (October, 1974): 22; American Accounting Association, "Report of the 1973-74 and 1975 Committees" pp. 1-37.

within each main topic. Then, VanZante developed concise descriptions for each topic making reference to current cost/managerial accounting, economics, finance and behaviourial theory textbooks along with the Roy and MacNeill study.[55]

VanZante's questionnaire development started with the combination of his management accounting topic list, their brief topic descriptions and requests for demographic information (respondent's management level, respondent's firm's product, and others). Comments received from four industrial accountants, three accounting professors, and Dr. James Bulloch[56] on the initial questionnaire were incorporated into a pretest questionnaire.

The questionnaire was pretested by twenty-two industrial accountants, members of the Oklahoma City Chapter of the National Association of Accountants. Based on comments received from this group, VanZante revised the questionnaire into its final format. One topic "computer programming" was added to his list of topics as a result of pretesters' suggestions.

VanZante mailed questionnaires to all 218 CMAs employed in industry in 1976. His final questionnaire included the

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55/ Roy and MacNeill, Horizons, pp. 191-259.

56/ Dr. James Bulloch was the Director of the Institute of Management Accounting. VanZante, A Survey of the Perceptions of Industrial CMAs, p. 29.

list of twenty-eight management accounting topics with a brief description of each topic. The questionnaire asked respondents to rate the importance of each topic to the performance of their current work responsibilities, using a scale of zero (no importance) to five (extremely important). Demographic information concerning the respondent's present position and his company was also requested to facilitate the later analysis of ratings by subgroup characteristics.

VanZante obtained 205 usable responses, reflecting a response rate of 94%. The newness of the CMA designation probably created a high interest among the respondents and this high respondent interest, combined with the relative ease of completing the questionnaire would assist in achieving a higher response rate.

VanZante analyzed the data from returned questionnaires to describe the mean ratings by all respondents and then by population sub-groups. In addition, he arranged the ratings in the order of highest to lowest mean rating. The topic rankings were used for descriptive and inter-group comparison purposes by computing the Spearman rank correlation coefficient[57] over all topics. VanZante could have obtained additional information from his questionnaire data by

57/ This nonparametric statistic is described in Sidney Siegel, Nonparametric Statistics: For the Behavioral Sciences (New York: McGraw-Hill, Inc., 1956) pp. 202-213.

using further statistical analysis to give inter-group comparisons on each topic.

VanZante also compared the topic rankings with two other sets of topic rankings, one which he developed from the results of an AAA committee report and another which he developed from his earlier content analysis of CMA examinations. As VanZante noted, the comparisons of topic rankings imply possible changes in the relative amount of coverage which each topic receives in accountng curricula or CMA examinations, but these comparisons give no indication of the adequacy of topic coverage.[58]

The major strength of the VanZante study is the topic list and brief topic descriptions which that author evolved. He established a topic list which appears to be comprehensive for the discipline of management accounting. Although completion of the questionnaire required only a small amount of each respondent's time, VanZante's questionnaire seems to have efficiently gathered the desired information.

The VanZante study had two main shortcomings. First, the scope of the study was narrow. Although VanZante obtained data from 94% of the total number CMAs employed in industry, this group was extremely small in relation to the total population of all industrial management accountants

58/ VanZante, "A Survey of the Perceptions of CMAs" pp. 71-76,

and not likely representative of this larger population. For example, a CMA profile in 1976 showed that 97% of all industrial CMAs at that time held a university degree, 62% of the total held an advanced degree while 35% held undergraduate degrees.[59] Since the CMA program had existed only four years when the study took place, the holders of the CMA were unlikely to be representative of management accountants in general. VanZante recognized that the population he surveyed was likely non-representative of industrial management accountants and he pointed out the need for a study with a larger scope.[60]

The second main shortcoming of VanZante's study was that he did not collect respondents' perception of the relative importance of each topic with reference to the other topics. Babbie states that uniform scoring of rating categories in scales where respondents are requested to give their opinions assumes that each item has about the same intensity as the rest of the items.[61] Thus, the topic rankings used by VanZante which were based on the magnitude

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59/ Jack L. Krogstad and John K. Harris, "Assessing Progress of the CMA Program", Management Accounting 58 (February, 1977) pp. 17-23.

60/ VanZante, "A Survey of the Perceptions of CMAs", p. 79.

61/ Earl R. Babbie, Survey Research Methods, (Belmont, California: Wadsworth Publishing Company, Inc., 1973) pp. 269-70. For a similar discussion see C. William Emory, Business Research Methods (Homewood, Illinois: Richard D. Irwin, Inc., 1976) pp. 248-50.

of the topic mean ratings assume that the respondent considered the topics to be of equal relative weight.

Summary

Each of the five studies reviewed in this section deals with an evaluation of the relationship between management accounting education and practice. The populations from which samples were collected all tended to be biased toward public accountant representation. One exception was VanZante's study; however, his population of CMAs was also not likely representative of management accountants in general. Four of the studies developed questionnaires which tended to be lengthy and repeated topics and sub-divisions of them. This repetition and over-lapping of questionnaire topics had a negative impact on the value of the resultant data. In the fifth study , the questionnaire developed by VanZante was a major strength of that study.

Chapter Summary

In this Chapter results of the literature review are presented. A number of studies related to the current study were reviewed in order to assist in the selection of methodology and in the performance of this study. The literature indicates an increase in the number of studies in business

involving opinion measurement, particularily within the last decade.

Twenty six studies, mostly doctoral dissertations, are reviewed in four related groupings. First, a group of studies related to research concerning opinions about accounting information (Exhibit 7) is discussed. These studies are reviewed because of the pertinence of their methodologies and the related nature of the sampled populations to the present study. The studies in this first group indicate that opinion survey techniques can be applied with success in the study of accounting, although low response rates may occur.

The next group of studies is concerned with examining the relationships between the practice and the education of public accountants (Exhibit 8). The most extensive and influential is Roy and MacNeill's four-year study Horizons. Each of the studies in this second group illustrates the difficulty in relating the practice of accounting with the content of accounting education curricula in a completely tangible way. Therefore, their findings and recommendations tend to be stated in general terms so that readers are left to make their own inferences about the studies' results. Several studies are also limited because they gathered their empirical evidence from populations located in one state or other restricted geographical areas.

The third group of studies reported in this Chapter attempt to increase knowledge about the relationship between specific accounting topics and their importance to accounting education and practice (Exhibit 9). While they may provide insight into specific aspects of the education of accountants, their findings can not be integrated to permit a comprehensive assessment of acounting curricula.

The final group of studies discussed is directed to providing information about management accounting education (Exhibit 10). These five studies have particular relevance to the current study and each is examined in detail. Particular attention is given to the manner and limitations related to questionnaire design, sample selection and data analysis.

Chapter 3 discusses the selection and the application of the methodology for this study.

Chapter 3

RESEARCH METHODOLOGY

Introduction

The purpose of this Chapter is to identify and explain the research approaches selected to accomplish the purpose of the study. Specifically, this Chapter includes discussions of research design objectives and selection of methodology, the reasons for choosing the mail questionnaire method, questionnaire development, sample selection, data collection, statistical testing and data analysis procedures.

Research Design Objectives and Selection of Methodology

A research design provides the plan and related structure to arrange the conditions for the collection and analysis of data. The research design must be relevant to the research objective and it should also be economical in procedure.[1] The objectives of a good research design are to:

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[1]/ Claire Selltiz, Lawrence S. Wrightsman and Stuart W. Cook, Research Methods in Social Relations 3rd ed. (New York: Holt, Rinehart and Winston, 1976) p. 90.

1. specify the data to be collected along with when and how they will be collected;

2. specify the appropriate statistical analysis;

3. consider the validity of the results and the inferences made from those results; and

4. control or minimize the impact of any variables not included in the study and the effects of random error.[2]

Research methodology can be defined as the particular set of strategies, domains and techniques chosen to accomplish the objectives of a study. Exhibit 11 sets out in flowchart format the main considerations in the process of research methodology selection.[3] The flowchart shows the main considerations when selecting these three components of a research methodology:

1. strategy, the essential nature of the data and the process of finding the required data;

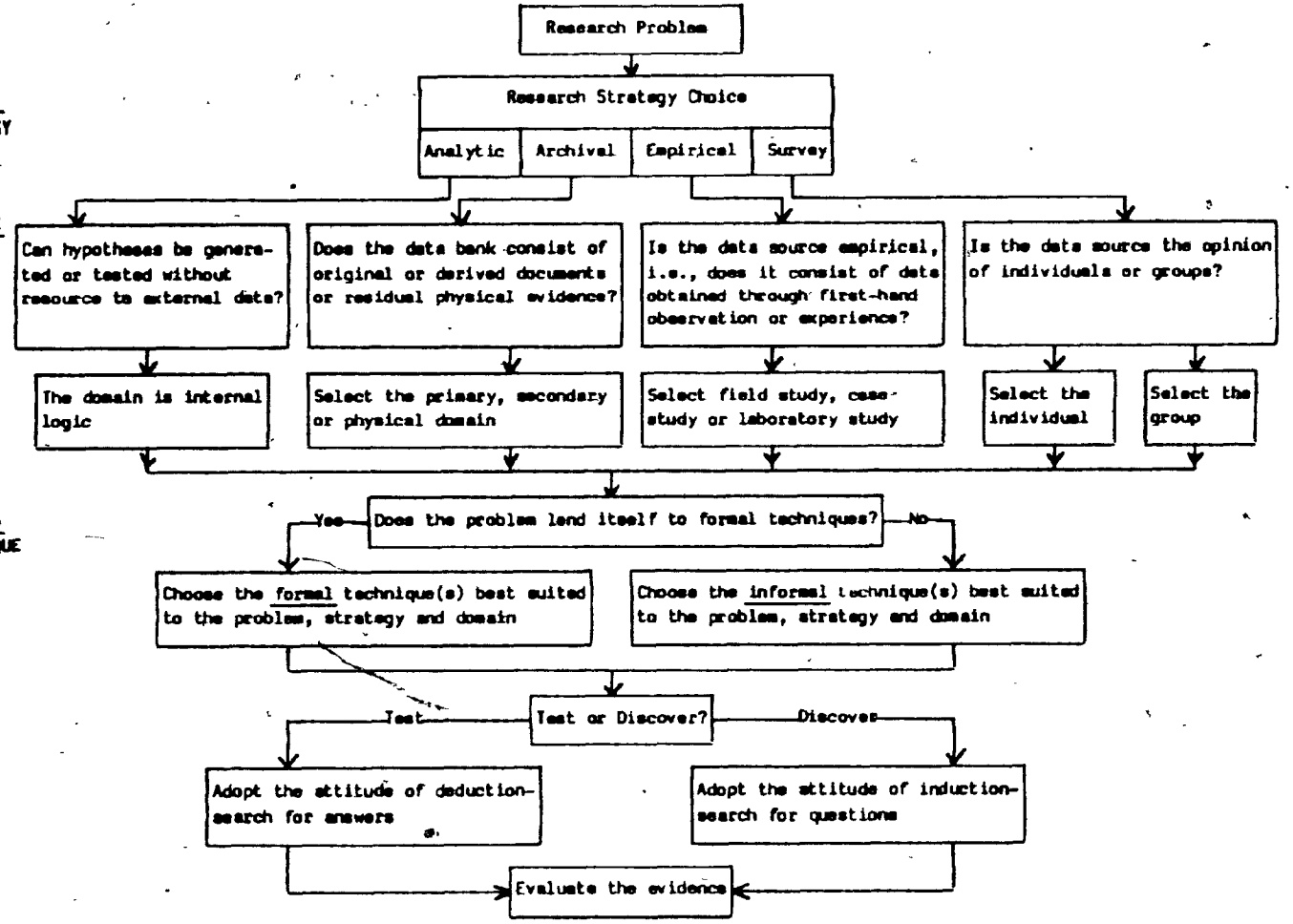
2. domain, the data source and its environment; and

2/ A. Rashad Abdel-Khalik and Bipin B. Ajinkya, Empirical Research in Accounting: A Methodological Viewpoint (Sarasota, Florida: American Accounting Association, 1979) pp. 29-30.

3/ This process of research methodology selection is not intended to be restrictive nor exhaustive. As Abraham Kaplan points out, there is no definition of research general enough to include all useful procedures nor is there such a thing as the scientific method. Abraham Kaplan, The Conduct of Inquiry: Methodology for Behavioral Science (San Francisco: Chandler Publishing Company, 1964) p. 27.

Exhibit 11

Flowchart of Research Methodology Selection



Source: Adapted from J.W. Buckley, M.H. Buckley and H.F. Chiang, Research Methodology and Business Decisions (Hamilton, Ont.: The Society of Industrial Accountants of Canada, 1976) p. 34.

3. technique, the means of obtaining and analyzing the data.[4]

Several research choices which could be considered as basically suitable to the current study, together with their main advantages and disadvantages, are presented in Exhibit 12. No research choice is included for the first primary category, Analytic. Analytic research relies solely on the researcher's logical arguments without the use of direct evidence and, therefore, is an inappropriate methodology for this study. The process of RIA curriculum revision to date has relied almost exclusively on the analytic process.

The first two methods in Exhibit 12, content analysis and analysis of existing data, belong to the Archival category. Content analysis was used in those studies examined in Chapter 2 which employed a review of college catalogues to establish accounting curricula components. The current study relates to the RIA curriculum and content analysis of other accounting courses is not necessary. Since relevant data did not exist prior to this study, the second method (analysis of existing data) is also not relevant to the accomplishment of the study's purpose.

The next two methods in Exhibit 12 are included in the third category, Empirical. While these two methods appear

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[4] John W. Buckley, Marlene H. Buckley and Hung-Fu Chiang, Research Methodology and Business Decisons (Hamilton, Ontario: The Society of Industrial Accountants, 1976) p. 23.

Exhibit 12

Possible Research Choices with Their Advantages and Disadvantages

Research Method	Advantages	Disadvantages
1. Content analysis (Systematic examination of existing documents, Archival category)	A. Provides a means of gathering data from existing information which is usually treated on an impressionistic basis	A. The documents may not provide the most relevant information on the variable(s) under study B. Some arbitrary or subjective bias will likely be present
2. Analysis of existing data (Use of data collected by others, Archival category)	A. Economy	A. The researcher is restricted to data which may not be the most appropriate to his research objective
3. Case study (A comprehensive explanation of a particular situation, Empirical category)	A. Provides in-depth, direct information about many variables in one particular application	A. Provides no means of generalizing the results B. Subject to researcher bias in the selection of what to include in the output of the research
4. Participant observation (Researcher attempts to observe relevant information without influencing the activity under review, Empirical category)	A. Provides in-depth, direct information about many variables in one particular situation or set of situations	A. Observer may affect the phenomenon under study B. Observer's selection criteria may provide a source of bias C. Provides limited amount of information which can be generalized to other situations

Exhibit 12 (continued)

Possible Research Choices with Their Advantages and Disadvantages

Research Method	Advantages	Disadvantages
5. Survey of participants (Researcher gathers evidence about a current condition, Survey category)	A. Provides broadly based data which can be statistically analyzed to make inferences about the whole population or sub-groupings B. Provides a means of gathering data on specific issues directly from respondents	A. Does not provide cause and effect evidence B. Subject to the degree of respondent interest and co-operation

Sources: The above represents a consensus taken mainly from the following:

1. Earl R. Babbie, Survey Research Methods, (Belmont, California: Wadsworth Publishing Company, 1973), pp. 41-70.

2. G.C. Helmstadter, Research Concepts in Human Behavior: Education, Psychology, Sociology (New York: Meridith Corporation, 1970), pp. 41-127.

3. Claire Selltiz, Lawrence S. Wrightsman and Stuart W. Cook, Research Methods in Social Relations 3rd ed., (New York: Holt, Rinehart and Winston, 1976), pp. 251-431.

basically relevant to this study, they are limited to examination of one or very few situations and would not provide the broadly based data needed for this study. In addition, the data provided would probably be about the general nature of management accountants' work, and thus, would not relate to specific management accounting topics.

The final method in Exhibit 12, the descriptive survey, was selected as the method most suited to the current study because it provides the means to collect broadly based data related to specific curriculum topics. In addition, fifteen of the sixteen studies relating to accounting education which were reviewed in Chapter 2 (Exhibits 8, 9 and 10), used surveys as their primary methodology.

The survey method can be accomplished by interviews or by mail questionnaires. The use of personal interviews to obtain broadly representative data needed for the present study was not considered practical. Telephone interviews could be conducted to obtain the required data, but this method would be more costly than the alternative, a mail questionnaire. In addition, telephone interviews tend to be less valid than mail questionnaires because of the potential of interviewer bias and because telephone interviews do not

permit leisurely and thoughtful reply.[5] The mail questionnaire was selected as potentially the most relevant data collection method for the study.

The Mail Questionnaire Method

The advantages and disadvantages of mail questionnaires are given in Exhibit 13. The potential of obtaining responses from a large representative sample of geographically dispersed respondents was important to the objectives of this study. The advantage of obtaining these data during a short time period also was important in controlling responses for differences which could be merely a function of different time periods. Finally, the ability to achieve all of these advantages at a reasonable cost made the mail questionnaire the most practical method of collecting the required data.

The primary disadvantage of mail questionnaires is the problem of nonreturns. Two approaches to offset this problem were followed in this study. First, before the questionnaire was mailed and during the mailing process the

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5/ Harper W. Boyd, Jr. and Ralph Westfall, "Interviewers as a Source of Error in Surveys", Journal of Marketing, 19 (April, 1955): 311-324. See also, by the same authors, "Interviewer Bias Revisited", Journal of Marketing Research, 2 (February, 1965): 58-63, and "Interviewer Bias Once More Revisited", Journal of Marketing Research, 7 (May, 1970): 249-53.

Exhibit 13

Advantages and Disadvantages of the Mail Questionnaire Method

ADVANTAGES
1. Permits a larger and more accurate sample at a lower cost than alternative methods.
2. Gives access to geographically dispersed samples without the location problems inherent in interview methods.
3. The larger and more representative samples which are possible may yield greater validity.
4. Encourages response through the instrument's relatively impersonal nature giving a sense of privacy.
5. Permits time for a thoughtful reply.
6. Permits a uniform posing of questions to respondents and, thus, avoids the possibility of interviewer bias.
7. Can be administered almost simultaneously to a large number of people.
DISADVANTAGES
1. Subject to nonresponse bias because of nonreturns.
2. Questions must be simpler than those which could be posed in interviews.
3. Current addresses must be obtained for each subject.
4. Respondents may skip questions.
5. Misunderstood questions can not be clarified.
6. Validity depends on the willingness of the respondents to provide the requested information.
7. Respondents may pass the questionnaire to someone else for completion.
8. Respondents expression of opinion is limited to issues where they have clearly formulated views which can be simply expressed.

Sources: Delbert C. Miller, Handbook of Research Design and Social Measurement 3rd ed. (New York: David McKay Company, Inc., 1977) pp. 73-74; A.N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books, Inc., 1966) pp. 30-35; Claire Selltiz, Lawrence S. Wrightsman and Stuart W. Cook, Research Methods in Social Relations 3rd ed. (New York: Holt, Rinehart and Winston, 1976) pp. 294-299.

researcher chose, wherever possible, those alternatives which had the potential of maximizing responses. Second, after receipt of the usable returns the researcher made statistical examinations to evaluate whether or not there was reason to suspect that the survey data were biased because of nonresponses. The details of actions taken to maximize returns and to examine for nonresponse bias are given later in this Chapter.

The remaining disadvantages given in Exhibit 13 were considered not to have a potentially serious impact on the use of mail questionnaires for this study. The questionnaire deals with management accounting topics of professional interest to respondents, increasing the probability that they will personally complete all items on the questionnaire and decreasing the probability that questions would be misunderstood. The Society of Management Accountants agreed to supply the researcher with current addresses from its membership files, thus overcoming disadvantage number 3. Respondents would likely find a questionnaire on management accounting topics to be one which was soliciting information on issues relevant to their professional interests and one which they would be willing to complete.

Questionnaire Development

Five studies into management accounting education are cited and evaluated in Chapter 2.[6] The questionnaires used in these five studies were reviewed for their basic suitability in the current study using a set of characteristics of good questionnaires.[7] These characteristics, along with an evaluation of each questionnaire, are presented in Exhibit 14.

Two of the questionnaires evaluated in Exhibit 14, one by Deakin and Summers and the other by VanZante, satisfy the characteristics more favourably than the other three questionnaires. VanZante's questionnaire, however, is superior to the one used by Deakin and Summers. This is not surprising since VanZante used the Deakin and Summers' questionnaire as one input into the development of his questionnaire.[8]

VanZante's list of topics is more comprehensive than the list used by Deakin and Summers even though the latter

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6/ Details of these studies by Barker, Carney, Deakin and Summers, Knight and VanZante are given in Exhibit 10.

7/ This list is drawn mainly from A.N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books, Inc., 1966) pp. 37-47; Earl R. Babbie, Survey Research Methods, (Belmont, California: Wadsworth Publishing Company, Inc., 1973) pp. 136-155; and Claire Selltiz et al., Research Methods, pp. 547-563.

8/ Neal R. VanZante, A Survey, pp. 9-11.

Exhibit 14

Review of Questionnaires from Management Accounting Education Studies

Desired Characteristics	Researchers				
	Barker	Carney	Deakin and Summers	Knight	VanZante
1. Seeks relevant information which respondents can supply.	Yes	No, topic development not thorough.	No, topic list not complete.	Yes	Yes
2. Seeks information not already available from other sources.	Yes	Yes	Yes	Yes	Yes
3. Provides simple, clear and complete directions and questions, with important terms defined.	No, definitions not given.	No, directions not clear, terms not all defined.	Yes	No, definitions not given.	Yes
4. Questions are objective, presented impartially.	No, topics vary in intensity.	No, topics vary in intensity.	No, some imbalance in topic intensities.	No, great imbalance in topic intensities.	Yes, topics well balanced in intensities.
5. Questions are presented in logical order with trivial items ignored.	No, excessive detail.	No, excessive detail.	Yes	No, excessive detail.	Yes
6. Is as short as possible.	No, contained 99 items.	No, contained 50 items.	Yes, but see item 1., above	No, contained 72 items.	Yes
7. Is easy to tabulate and interpret.	No, rating scale had 3 points only.	Yes	Yes	No, rating scale limited.	Yes
8. Is attractive in appearance.	Yes	Yes	Yes	Yes	Yes

Note: For details of the five studies see Exhibit 10 and the related discussion in Chapter 2.

listed 39 topics. VanZante includes these topics which have no counterparts in the Deakin and Summers listing:

Macroeconomic theory
Microeconomic theory
Long-term finance
Financial statement preparation
Major regulatory bodies
Social measurement and reporting
Financial statement analysis
Independent auditing

On the other hand, Deakin and Summers have included a number of topics which are narrowly specific in coverage. Some examples are: "learning effect", "job order costing" and "contract costing".

After reviewing VanZante's procedures to establish his list of twenty-eight topics, this topic list was evaluated for the adequacy of the range of topics and the relevance of each topic description for a survey to gather data for the current study. Reference was made to the Management Accountant's[9] and the Advance Studies Program (ASP)[10] bodies of knowledge by SMA. These two SMA documents include detailed descriptions of the RIA program and ASP curricula. From this review, the researcher concluded that the questionnaire topic list and descriptions used by VanZante were adequate and, except for minor changes in one topic (Major

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9/ The Society of Industrial Accountants of Canada, "The Management Accountant's Body of Knowledge" Revised Edition, Hamilton, Ontario, 1976.

10/ The Society of Industrial Accountants of Canada, "Advanced Studies Program Body of Knowledge", Hamilton, Ontario, 1977.

Regulatory Bodies) to refer to Canadian rather than US agencies, that the topics were applicable to the current study. This conclusion that the topics and their descriptions prepared by VanZante for a US study of management accounting would be applicable with minor changes to a Canadian study is not surprising. First, management accounting concepts and techniques are pragmatic and, given the relatively similar working environments for US and Canadian management accountants, the management accounting body of knowledge is relatively common to both countries. Second, the management accounting textbooks used in the RIA program are popular US textbooks.

The topic rating scale constructed by VanZante was examined for its usefulness in the current study. On his questionnaire, VanZante requested respondents to rate the importance of each management accounting topic on a scale of zero (no importance) to five (extremely important). Each value of the scale was defined to aid respondents in making their selections. Since the choice of possible ratings for each topic was from an even number of alternatives (six), respondents were forced to decide whether the topic was of below average importance or of above average importance. This even-numbered scale eliminated the possibility of any topic being rated as having "average importance" and, thus, prohibited a multitude of "average importance" responses. In addition, VanZante reversed the rating scale on every

other topic in an attempt to control for the possibility that some respondents might make only a perfunctory review of the topic list. Babbie remarked upon the general need for such considerations:

> ...I would stress (and will do so throughout this volume) that the quality of a research project can depend importantly on the seemingly mundane decisions and activities that go into the collection and processing of data.[11]

The zero to five rating scale used by VanZante is a measure of intensity of each item and appears similar to intensity ratings used in the Likert scale technique.[12] However, the Likert technique is intended to develop a set of related questionnaire items whose separate ratings (simple indexes) can be combined into a composite index for each respondent.[13] This distinction between item intensity scales used to evaluate an item (VanZante's use) and item intensity scales used in combination to assign attitude scores to respondents (Likert's use) is important when

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11/ Babbie, Survey Research Methods, p. 10.

12/ Delbert C. Miller, Handbook of Research Design and Social Measurement (New York: David MacKay Company, Inc., 1977) p. 89.

13/ Ibid., p. 87. See also Harry S. Upshaw, "Attitude Measurement" in Methodology in Social Research, eds. Hubert M. Blalock and Ann B. Blalock, (New York: McGraw-Hill, Inc., 1968) pp. 94-97. Upshaw refers to this Likert technique as the "method of summated ratings" (p. 94).

considering matters of the validity and reliability of VanZante's questionnaire.

Shaw and Wright state that the ideas of validity and reliability are "complicated" and "complex".[14] These qualities of instruments are considered in relative terms because perfect validity or perfect reliability are ideals rarely, if ever attained. Exhibit 15 presents summary definitions and concepts relating to these two qualities of questionnaires. As Exhibit 15 explains, the evaluation of reliability and validity is more complicated when attitude rating scales are used which are to be combined to represent a composite index of respondents.

VanZante's questionnaire was not designed to provide ratings of individuals and neither the pragmatic validation approach nor the construct validation approach (Exhibit 15, items 3 a and b) is logically applicable to an evaluation of its validity. VanZante's procedures to establish a valid measurement instrument can be classified under the self-evident validation approach (Exhibit 15, item 3 c). First, he developed a list of topics from existing questionnaires and other sources to evaluate his questionnaire's degree of content validity. Second, through his consultation with experts and his pre-testing he evaluated the face validity

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14/ Marvin E. Shaw and Jack M. Wright, Scales for the Measurement of Attitudes (New York: McGraw-Hill, Inc., 1967) pp. 16-17.

Exhibit 15

Questionnaire Validity and Reliability Concepts

1. Definitions:

   a. Validity is the extent to which differences in scores reflect true differences among respondents on the characteristic intended to be measured.
   b. Reliability is the extent to which two applications of the same or highly similar measures under comparable conditions give the same results.

2. General

   Evaluation of questionnaire validity and reliability is made in relative terms because perfect reliability and validity are ideal concepts which are rarely, if ever, attained. Validity is the more important concept because, if an instrument had satisfactory validity for its intended purpose, there would be no need to be concerned about its reliability. On the other hand, satisfactory reliability does not directly indicate the degree of an instrument's validity.

   Much of the social science literature concerning validity and reliability is confusing and inconsistant in terminology. To some extent, this lack of clarity reflects the developing nature of the topic, particularly during the last three decades. Another factor contributing to confusion is that many authors in discussing validity and reliability make the implicit assumption that all questionnaires incorporate composite attitude scales. Evaluation of validity and reliability is inherently more difficult when composite attitude scales or indexes are used as compared with when each index is treated independently.

3. Approaches to Validity Evaluation:

   a. Pragmatic validation, evaluation of the instrument's results against other empirical data to show whether or not the instrument has "concurrent validity" (helps to distinguish individuals now) and "predictive validity" (helps to distinguish individuals who will differ in the future).
   b. Construct validation, evaluation of the consistency of the instrument's results with expectations. "Convergent validity" exist when different measures of the same item produce similar results. "Discriminant validity" exists when the item measured can be differentiated from other items.
   c. Self-evident validation, evaluation of the relevance of the measuring instrument to what is intended to be measured ("face validity") and whether or not the instrument provides an adequate sample of the kind of behaviour with which it is concerned ("content validity").

Exhibit 15 (continued)

Questionnaire Validity and Reliability Concepts

4. Approaches to Reliability Evaluation:

   a. Stability estimates, the degree to which repeated applications, with no genuine change in the characteristic being measured, yield consistent results.
   b. Equivalence estimates, the degree to which different instruments or different researchers using the same instrument applied to the same individuals at the same time yield consistent results.
   c. Homogenity estimates, the degree to which items measuring the same characteristic at the same time provide consistent results.

Sources: Claire Selltiz, Lawrence S. Wrightsman, Stuart W. Cook, Research Methods in Social Relations (New York: Holt, Rinehart and Winston, 1976) pp. 160-197; Harry S. Upshaw, "Attitude Measurement" in Methodology in Social Research, eds. Hubert M. Blalock and Ann B. Blalock, (New York: McGraw-Hill, Inc. 1968) pp. 65-69; J.P. Guilford, Psychometric Methods 2nd ed. (New York: McGraw-Hill, Inc., 1954) pp. 373-409; and Marvin E. Shaw and Jack M. Wright, Scales for the Measurement of Attitudes (New York: McGraw-Hill, Inc., 1967) pp. 16-21.

of his questionnaire items. While the current researcher reviewed and accepted VanZante's procedures to validate his questionnaire, as noted previously the questionnaire was reviewed and improved to ensure its validity for use in this study.

VanZante's zero to five rating scale was retained because it offers sufficient sensitivity[15] without offering too many choice categories which would not represent genuine distinctions. Selltiz, et al. note that "Within limits, the reliability of a scale increases as the number of possible alternative responses is increased;..."[16] In addition, as on VanZante's questionnaire, the scale was reversed for every other topic in an attempt to mitigate the possibility that respondents would merely circle numbers without considering each item independently.

The researcher decided that it would be unnecessary to include a request for respondent demographic data on the questionnaire because SMA made the relevant information available from its file of current members. The respondent information desired for this current study consisted of identificaton of each respondent's industrial category,

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15/ Selltiz, et al., Research Methods, p. 162 states, "...a research instrument should be capable of making distinctions fine enough for the purposes it is to serve; it should be sensitive."

16/ Ibid. p. 419.

accounting sector and the year in which he received his RIA designation. The absence of a section requesting demographic data also shortened the questionnaire and, thus, might positively influence the response rate.

Each questionnaire was identified by a unique code in order to link completed responses with the appropriate respondent information. Results from four questionnaire studies show no evidence to support the assumption that safeguards of anonymity encourage high levels of responses.[17]

One limitation of VanZante's questionnaire noted in Chapter 2 was the lack of a direct ranking of topics by respondents. The omission of a section requesting respondent demographic data permitted the researcher to consider the addition of a topic ranking section while keeping the questionnaire easy for respondents to complete. This additional section of the questionnaire requested each respondent to select, from the 28 topics, those five topics which were the most important to him and to allocate 100 points among the five chosen topics according to their relative importance. These rankings also provide a means to evaluate the respondents' ratings in section one of the questionnaire since the higher ranked topics in section two

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17/ Leslie Kanuk and Conrad Berenson, "Mail Surveys and Response Rates: A Literature Review", Journal of Marketing Research 12(November, 1975): 446.

could be expected to be among the higher rated topics in section one. The limitations of such a comparison of rankings and ratings are discussed later. The ranking request (section two) was limited to a selection of only five items to encourage respondents to complete this section and because respondents could not be reasonably expected to rank 28 items in a questionnaire listing. The final questionnaire, English version, is presented in Appendix A.

In order to encourage response from Quebec RIA's, the researcher decided to provide Quebec respondents with an English questionnaire accompanied by its French translation. SMA follows a similar practice with its RIA examinations. Candidates who indicate they wish to write in French are supplied with an examination in both languages so that they may refer both to the original and to the translation. There was a reasonable expectation that respondents would refer to the original questionnaire for clarification should they encounter an unfamiliar term on the translated version.

The method of "back translation" developed by Gasse to provide an accurate translation of research instruments was employed to translate the questionnaire into French.[18] This method recommends the use of bilingual (English-French)

18/ Yvon Gasse, "Contextual Transpositon in Translating Research Instruments", Meta 18(September, 1973): 295-307.

subjects to perform translations and in one application Gasse used bilingual students of business administration.[19]

To control for compatability of the French and English versions the researcher had two separate translations into French and two separate translations back into English prepared by bilingual, final year students of business administration at the Collège militaire royal de Saint-Jean.[20] The student-translators were not told that any translation other than their own was being prepared in order to reduce the possibility that the parallel translations would merely be duplicates.

The translation process resulted in a French version which appeared to be compatible with the English questionnaire. Where alternative French terms were encountered preference was given to Quebec terms over continental French terms.[21] The finalized French and English versions were

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19/ Yvon Gasse, "L'Idélogie D'Affaires et les Aptitudes Cybernétique des Entrepreneurs Québécois: Considération Méthodologiques" in Annales de l'Association Canadienne-Française pour l'Avancement des Sciences 42(1975) p. 127.

20/ The Collège militaire royal de Saint-Jean is an institution funded by the Canadian government offering instruction leading to a Bachelor of Administration degree. All students must pass bilingual proficiency tests and all courses are offered in both English and French.

21/ This situation of alternative phrases in Quebec French is paralleled in Canadian English where North American and British English often provide alternate words to designate the same item or concept.

pretested by bilingual professors of management accounting and they recommended no additional changes. Finally, the researcher compared the French and English terminologies with a recognized management accounting text available in both languages.[22] This last review strongly suggested that the final French version of the questionnaire (Appendix B) was equivalent to its English counterpart.

Population and Sample Selection

The population for this study consisted of all RIAs having addresses in Canada on October 25, 1977, except those who had retired and those who were employed as educators. Retired RIAs were excluded because a questionnaire surveying the importance of management accounting topics to respondents' current work activities could only be applied to RIAs still actively working. RIAs employed as educators were excluded because their responses would likely be a reflection of their current teaching interests and, therefore, would not provide useful data for this study. RIAs employed by educational organizations in non-teaching positions were not excluded from the target population.

22/ Charles T. Horngren, Cost Accounting: A Managerial Emphasis 3rd ed. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1972), and the translation of this edition, Charles T. Horngren, Comptabilité Analytique de Gestion, trans. Anacleto J. Fernandez, (Montréal: Les Éditions HRW Ltée, 1977).

On October 25, 1977, there were 9,446 RIAs listed in the SMA membership file. The researcher manually reviewed a computer listing of the complete current membership file information (supplied by SMA) to determine those specific members to be included in the target population. A target population of 8,651 RIAs to whom this study was applicable resulted after exclusion of RIAs with addresses outside Canada and those listed as retired or employed as educators, 795 exclusions in total.

When considering sample selection procedures, the researcher decided to use probability sampling because of the potential advantages of this approach when using the resultant data to make statements about the whole population.[23] Most statistical analysis methods, even those which make the least assumptions about the data, require data which result from probability sampling.

Choice of a sample size is an important consideration. Sample sizes are often made large enough to help ensure they contain adequate representation from various sub-groups of the population. The details of the main sub-groups sampled and analyzed in this study are given in Exhibit 16. Based on the review of related studies and discussions with re-

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23/ The advantages of probability based sampling are well documented. For example see, Leslie Kish, Survey Sampling (New York: John Wiley and Sons, Inc., 1965) pp. 9-17, or Earl R. Babbie, Survey Research Methods (Belmont, California: Wadsworth Publishing, Inc., 1973) pp. 83-91.

Exhibit 16

Population Sub-Groups

1. Industry Classification:

   Manufacturing
   Construction
   Natural Resources
   Agricultural and Food
   Other Industrial
   Wholesale Retail
   Finance and Insurance
   Other Commerce
   Federal Government
   Provincial Government
   Regional Municipal Government
   Transportation
   Public Utilities
   Public Accounting
   Educational
   Medical, Health and Welfare

2. Accounting Sector:

   Accountant
   Supervisor
   Manager
   Senior Finance Officer
   General Manager
   Public Accountant
   Internal Auditor
   Systems Analyst
   Other

3. Designation Year:

   Potential of 25 to 27 different years.

searchers experienced in survey sampling, the researcher decided upon a sample size of 2000. This sample size could be expected to provide adequate data at a reasonable cost.

Determination of the sample size can also be based upon the formula given in Exhibit 17, which requires consideration of the following:

1. the population dispersion indicated by the standard deviation of the attribute to be measured;

2. the size of the population; and

3. the desired interval within which the parameter to be measured may be expected to occur (the interval estimate), and the desired confidence level in the interval estimate.[24]

The formula is used in this study to determine, given a sample size of 2000, the confidence level which is implied.

Kish recommends data from past surveys as a logical source to estimate the anticipated standard deviation.[25] The standard deviations noted by VanZante in his study ranged from .99 to 1.63.[26] Since the population responses from the current survey were expected to be more heterogeneous, a standard deviation of 2.0 was used in determining sample size. Kish also points out that the validity of the variances calculated from actual sample values is not affected by differences between the actual variance of the

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24/ C. William Emory, Business Research Methods, (Homewood, Illinois: Richard D. Irwin, Inc., 1976) pp. 148-150.

25/ Kish, Survey Sampling, p. 51.

26/ VanZante, A Survey, p. 42.

Exhibit 17

Confidence Level Calculation

1. Formula $$\sigma_{\bar{X}} = \frac{s}{\sqrt{n-1}} X \sqrt{\frac{N-n}{N-1}}$$

Where:

N = target population size, 8651

n = sample size

$\sigma_{\bar{X}}$ = the standard error of the estimate; computed by dividing the interval estimate (.2) by the desired confidence level expressed in standard errors of the mean (to be determined)

s = estimate of the population standard deviation (2.0)

Source: C. William Emory, Business Research Methods (Homewood, Illinois: Richard D. Irwin, Inc., 1976) p. 150.

sample mean and the estimate made to determine sample size.[27]

While population size in the current study is known, the third ingredient in the determination of sample size requires two subjective decisions regarding the interval estimate. First, the size of the interval estimate itself and, second, the confidence level of the interval estimate. For the current study the researcher chose an interval estimate of .4 (plus or minus.2, on the 0-5 scale, around

27/ Kish, Survey Sampling, p. 52.

the estimator). Application of the factors (interval estimate, estimate of population standard deviation, sample size and population size) into the formula in Exhibit 17 yields a confidence level exceeding 99%. This combination of interval estimate and confidence level signifies that the researcher can be over 99% confident that the sample means will fall between plus or minus .2 around the true population mean. The sample size chosen reflects a high degree of accuracy while not requiring unmanageable sample sizes from the RIA population under study.

A computerized, random-number generator supplied lists for sample selection. RIAs in the target population were numbered sequentially according to the SMA file sequence and those numbers appearing on the random number lists were selected from the file listings to form the sample.

Questionnaire Distribution Procedures

Attention was paid during the printing and distribution of the questionnaires to any details which might improve the response rate. A summary of research studies which attempted to determine the effects of alternative questionnaire procedures upon response rates is given in Exhibit 18. However, as the authors of the table source noted:

> Despite the large number of research studies reporting techniques designed to improve response rates, there is no

Exhibit 18

Summary of Empirical Evidence about Questionnaire Procedures

Procedure Tested	Results on Response Rates
1. Preliminary notification	1. May be improved by telephone calls
2. Followups	2. Increases
3. Questionnaire Length	3. Inconclusive
4. Sponsorship	4. Official or respected sponsorship may be an asset
5. Return envelopes	5. May encourage response
6. Postage-outgoing and return	6. Special delivery and air mail may increase responses. Type of postage (ordinary, commemorative or metered) showed no differences
7. Personalized mailing and cover letter	7. No clear advantage
8. Anonymity	8. No significant effect
9. Expensive reproduction, use of coloured paper or questionnaire various paper sizes	9. No significant effect
10. Premiums and rewards	10. Small incentives (twenty-five cents) sent with a questionnaire can increase response rates
11. Deadline dates	11. May speed the rate of return but no apparent increase in responses

Sources: Leslie Kanuk and Conrad Berenson, "Mail Surveys and Response Rates: A Literature Review", Journal of Marketing Research 12 (November, 1975): 440-453.

> strong empirical evidence favoring any techniques other than followup and the use of monetary incentives.[28]

On November 4, 1977, a questionnaire was mailed to each of the 2,000 RIAs selected in the random sample. The covering letter (Appendix C, English version; Appendix D, French version) requested the respondent to return his completed questionnaire by November 18, 1977. An addressed, business reply envelope marked "First Class Mail" was included with each questionnaire. A unique serial number was placed at the top of each questionnaire for later respondent identification so that demographic data could be included with responses. Envelopes addressed to respondents in Quebec contained covering letters and questionnaires in both English and French.

On November 25, 1977 questionnaires were mailed to approximately 1,000 RIAs who had not responded by that time to the first mailing. Except for a revised covering letter (Appendix E, English version; Appendix F, French version) the material mailed on November 25 was identical to the material mailed on November 4. Each questionnaire used in the second mailing was uniquely identified in the same manner as for the first mailing, but a different colour of ink was used so the researcher could identify returned ques-

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28/ Leslie Kanuk and Conrad Berenson, "Mail Surveys and Response Rates", p. 451.

tionnaires as resulting from either the first or second mailing.

Some questionnaires from the first mailing were received after the second requests had been mailed. Usable responses from the first and second mailing were 1,128 and 297 respectively. The researcher decided that a third mailing was not warranted because of satisfactory overall response rate attained from the first and second mailings.

Description of Respondents

Usable returned questionnaires totaled 1,425 for section one and 1,373 for section two, reflecting response rates of 71.3% and 68.7%, respectively. None of the 52 respondents omitting completion of section two of the questionnaire provided any comments which could help to explain the omission. The high proportion of respondents answering both questionnaire sections (96.4% of the responses) implies that the usable responses from section two would still provide representative data. However, this implication is tested statistically in Chapter 4.

Exhibit 19 presents the responses to part one of the questionnaire by industry classification as well as by category percentages which are compared with the appropriate percentages for the total RIA membership. Review of the percentages in Exhibit 19 shows the main differences in

Exhibit 19

Respondents to the Final Questionnaire (Part One)
Classified by Industry

Industry Classification	Respondents		SMA Membership Profile*
Manufacturing	382	26.8%	28.3%
Construction	61	4.3%	3.4%
Natural Resources	78	5.5%	6.1%
Agricultural and Food	39	2.7%	2.5%
Other Industrial	29	2.0%	2.3%
Wholesale Retail	102	7.2%	5.5%
Finance and Insurance	63	4.4%	3.4%
Other Commerce	24	1.7%	1.4%
Federal Government	176	12.4%	12.5%
Provincial Government	126	8.8%	6.9%
Regional Municipal Government	30	2.1%	2.0%
Transportation	44	3.1%	2.3%
Public Utilities	100	7.0%	4.0%
Public Accounting	121	8.5%	6.3%
Educational	20	1.4%	4.2%
Medical, Health and Welfare	30	2.1%	1.2%
Other	NIL	0.0%	5.2%
Total	1425	100.0%	100.0%

* Taken from a printout received from SMA, dated February 9, 1978.

percentages occur for the categories "educational" (survey 1.4%, SMA 4.2%) and "other" (survey 0.0%, SMA 5.2%). The difference in the "educational" category results from the exclusion of teachers from the survey. The "other" category was eliminated from the survey by reclassifying the 74 respondents who would have otherwise been in this category into the more specific groupings based on respondent employment information obtained through the provincial Societies. A linear regression between the industry classification percentages for the survey and for the SMA profile shows a correlation coefficient of .952. The correlation coefficient rises to .987 when the categories "educational" and "other" are omitted from regression.

Exhibit 20 presents the responses to part one of the questionnaire by accounting sector, as well as by percentages which are compared with the appropriate percentages for the total RIA membership. Review of Exhibit 20 shows the main differences in percentages occur for the categories "academia" (survey 0.0%, SMA 2.2%) and "other" (survey 3.2%, SMA 11.2%). The reasons given for these percentage differences in relation to Exhibit 19 in the previous paragraph are also applicable to these differences in Exhibit 20. A linear regression between the accounting sector percentages for the survey and for the SMA profile shows a correlation coefficient of .938. The correlation coefficient rises to

Exhibit 20

Respondents to the Final Questionnaire (Part One)
Classified by Accounting Sector

Accounting Sector	Respondents		SMA Membership Profile*
Accountant	244	17.1%	15.0%
Supervisor	159	11.2%	9.7%
Manager	233	16.3%	15.3%
Senior Finance Officer	407	28.6%	26.6%
General Manager	89	6.2%	5.7%
Public Accountant	79	5.5%	4.2%
Academic	0	0.0%	2.2%
Internal Auditor	134	9.4%	7.9%
Systems Analyst	35	2.5%	2.2%
Other	45	3.2%	11.2%
Total	1425	100.0%	100.0%

* Taken from a printout received from SMA, dated February 9, 1978.

.998 when the categories "academic" and "other" are omitted from the regression.

Exhibit 21 presents the respondents to part one of the questionnaire by respondents' years of RIA designation as well as precentages which are compared with the appropriate percentages for the total RIA membership. Review of Exhibit 21 shows the main difference in percentages occurs for the category "other" (survey 0.0%, SMA 14.7%). These percentage differences result because the designation years for all RIAs in the survey were obtained from SMA files. A linear regression between the designation years percentages for the survey and the SMA profile shows a correlation coefficient of .882. However, the correlation coefficient rises to .992 when the category "other" is omitted from the regression.

Comparisons between the survey and the total RIA population show very high correlations for the three respondent variables: industry classification, accounting sector and year of RIA designation. Thus, the sample appears to be representative of the RIA population based on the respondent data. Some minor differences between the sample and the SMA profile based on the total RIA population could be expected because the RIA target population did not include RIAs resident outside Canada, retired RIAs and RIAs employed as teachers.

Exhibit 21

Respondents to the Final Questionnaire (Part One)
Classified by Year of RIA Designation

Year of RIA Designation	Respondents		SMA Membership Profile*
1950	1		
1951	2		
1952	1		
1953	3		
1955	3		
1957	2		
1958	1		
1959	77		
Sub-Total	**90**	6.3%	5.6%
1960	7		
1961	14		
1962	15		
1963	32		
1964	32		
1965	40		
Sub-Total	**140**	9.8%	10.0%
1966	35		
1967	55		
1968	65		
1969	106		
1970	57		
Sub-Total	**318**	22.4%	16.6%
1971	85		
1972	106		
1973	111		
1974	136		
1975	171		
Sub-Total	**609**	42.7%	35.8%
1976	148		
1977	120		
Sub-Total	**268**	18.8%	17.3%
Other	NIL	0.0%	14.7%
Total	1425	100.0%	100.0%

* Taken from a printout received from SMA, dated February 9, 1978. The printout provided only grouped percentages as shown above.

Preparation of Data for Analysis

Returned questionnaires were examined to ensure that at least one section had been completed and that the questionnaire identification number entered prior to mailing was legible. Then each questionnaire was stamped with the date of receipt[29] and coded to indicate the respondent's demographic data from the SMA files by referring to the questionnaire identification number. The following information was then punched into computer cards in preparation for data analysis:

1. the questionnaire sequential number;
2. the year of RIA designation;
3. the number of mail delivery days from the "base date" until the questionnaire receipt date. The "base date", the date the first questionnaires were received, was coded as "01";
4. the number of the mailing to which the respondent replied (1 or 2);
5. the type of business;
6. the type of position;
7. the zero to five ratings of the 28 topics; and
8. the five rated topics (number coded) and the ratings given by topic.

29/ The use of the date of questionnaire receipt to evaluate nonresponse bias is discussed later.

After keypunching and verification, the data cards were processed through specially written computer edit routines to ensure that all identifiers and data were within permissible ranges and that no serial number appeared twice. No exceptions were noted.

The rankings were further edited to ensure their weights totalled 100 for each respondent. This edit routine noted twenty-two cards which reflected total weights not equal to 100. Reference to the original questionnaires revealed that while the respondents had each indicated relative weights for five topics, they had not taken the precaution to ensure that each total weight equaled 100. In order to place the weights on a common scale with those of the other respondents, each set of weights was scaled up or down, as appropriate, to bring individual totals to 100 while preserving the relative weights given individual topics. This minor adjustment kept the data to a common scale to facilitate analysis without distorting the information provided by the data.

Following the adjustment, repunching and verification of the twenty-two cards, all cards were entered on computer disk files in preparation for data analysis.

Statistical Analysis

Criteria for Statistical Test Selection

Selection of statistical tests should be based on these criteria:

1. the power of the test;
2. the degree to which the data meet the assumptions of the statistical model underlying the test;
3. the test's power-efficiency relationship; and
4. the level of measurement achieved in the data.[30]

The higher the power of a test, the greater is the probability that it will reveal correct relationships. Generally, the more powerful tests are based on models with the strongest and most extensive assumptions. These assumptions relate to the extent to which:

1. the data result from probability samples;
2. the sampled populations are normally distributed;
3. these populations have the same variances; and
4. mathematical operations can be meaningfully applied to the data.

A test's power-efficiency relationship refers to the amount of increase in sample size which is necessary to make

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30/ Sidney Siegel, Nonparametric Statistics for the Behaviorial Sciences (New York: McGraw-Hill, Inc., 1956) p. 31.

one test as powerful as another. Where alternative tests are available which satisfy the other criteria, one would select the test with the most power. Siegel also points out that the level of measurement of the data places limits on the types of mathematical operations which can be meaningfully performed on them.[31]

Siegel further maintains that the t test requires satisfaction of at least these conditions, in addition to the use of probability based sampling:

1. normally distributed populations with the same variance; and
2. variables measured in at least interval scale.[32]

Several authors dispute the rigidity of the requirements which Siegel and others advocate for parametric tests. These authors do not suggest that one may ignore the requirements, but that these requirements be used to guide data analysis rather than be accepted as rigid laws. Researchers have tested the sensitivity of the t test to violations of the classical assumptions and found that the

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31/ This and the previous paragraph are taken from Siegel, Nonparametric Statistics, pp. 18-34.

32/ Siegel, Nonparametric Statistics, p. 19.

importance of these assumptions is often overrated.[33] With adequate sample sizes, the t test usually gives satisfactory results even with interval scale data.

Boneau criticized what he saw as a general trend away from the t and related parametric tests to nonparametric tests which, while they require less restrictive assumptions, are generally less powerful.[34] He reports this conclusion after conducting an empirical study of the sensitivity of the t test to violations of its assumptions:

> Having violated a number of assumptions underlying the t test, and finding that, by and large, such violations produce a minimal effect on the distribution of t's, we must conclude that the t test is a remarkably robust test in the technical sense of the word.[35]

33/ E.F. Lindquist, Design and Analysis of Experiments in Psychology and Education (Boston: Houghton Mifflin Company, 1953) pp. 72-98. See, in particular, Norman H. Anderson, "Scales and Statistics: Parametric and Nonparametric", Psychological Bulletin 58 (1961): 305-316; Bela O. Barker, "Weak Measurements vs Strong Statistics: An Empirical Critique of S.S. Stevens' Proscriptions on Statistics", Educational and Psychological Measurement 26 (1966): 291-309; and Frederic M. Lord, "On the Statistical Treatment of Football Numbers", American Psychologist 8 (1953): 750-751. These last three articles are reprinted in Readings in Statistics for the Behavioral Scientist, Joseph A. Steger, ed. (New York: Holt, Rinehart and Winston, Inc., 1971) pp. 19-52.

34/ C. Alan Boneau, "The Effects of Violations of Assumptions Underlying the t Test", Psychological Bulletin 57 (1960): 49.

35/ Ibid. p. 61.

Boneau also notes:

> The present concern seems to have been stimulated by the publication by psychologists of two recent texts in the field of statistics (Senders, 1958; Siegel, 1956) both of which are organized around Stevens' (1951) system of classifying measurement scales. Siegel and Senders belabor the point that parametric statistics, specifically the t and F tests should be avoided when the measurement scales are no stronger than ordinal, a state of affairs purportedly typical in psychology.
>
> If one were to take Siegel seriously on this point one would hesitate to use parametric tests with practically any attitude measure in social psychology, with practically any performance measure in experimental psychology, and with practically any rating method or personality scale in clinical psychology.
>
> A more realistic attitude is that parametric tests are useful whenever a measurement operation exists such that one of several possible numbers (scores) can be assigned unambiguously to an item of behavior without considering the relation of that item of behavior to other similar items, i.e., without ranking. This is typically the case with attitude scales, performance measures, and rating methods.[36]

Games and Lucas differentiate between "the science of data analysis" and "statistics" as follows:

> The science of data analysis...(in contrast to statistics), has a goal closely tied to the real world: to derive certain conclusions about the "state of the world" from a sample of evidence. Statistics, on the other

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36/ C. Alan Boneau, "A Note on Measurement Scales and Statistical Tests", American Psychologist 16 (1961): 260. Boneau is also supported by Norman H. Anderson who states that Siegel's restriction of the t-test to at least interval scale data is "completely incorrect", see "Scales and Statistics", Psychological Bulletin 58 (1961): 309.

> hand, is a mathematical discipline and can't be evaluated by the same empirical considerations. Consequently, although data analysis finds statistics very useful, it is helpful to maintain a distinction... Two aspects of data analysis are relevant...: (1) the choice of the best statistical test for the analysis desired and (2) an evaluation of how the test will be affected by deviations of the data from the assumptions of the test selected.[37]

The foregoing discussion in this section is presented to show that the choice of statistical methods for data analysis is not a simple matter. All of the studies reviewed in Chapter 2 which used nonparametric statistical methods did so based on the assumption that ordinal data automatically limit the statistical analysis choices to these methods. A closer review shows that this is not always the case and that deviations from the theoretical assumptions underlying the t test do not necessarily invalidate its use.

Selection of Statistical Methods

The total response scores, by importance rating, for each topic in part one of the questionnaire are given in Appendix G along with the calculated values for skewness and kurtosis. The Statistical Package for the Social Sciences

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37/ Paul A. Games and Patrick A. Lucas, "Power of the Analysis of Variance of Independent Groups on Non-normal and Normally Transformed Data", Educational and Psychological Measurement 26 (1966): 311.

(SPSS)[38] was used to provide information on the data distributions and their parameters. As these latter measures indicate, the underlying distributions show some deviations from the normal. In addition, the distributions themselves do not conform to a single pattern, e.g. skewness varies from -.843 to +.499 and kurtosis from -.856 to +.167. However, in the majority of cases skewness is negative, indicating that the median exceeds the mean for these data. These deviations from the normal distribution imply a risk that parametric methods might not be appropriate for the data. Another factor affecting the selection of appropriate statistical methods for these data is that they can be considered to be at an ordinal measurement level,[39] although, as noted earlier several authors reject this factor as an absolute constraint, especially when the sample size is large. Nevertheless, the researcher decided to select non-parametric statistical tests in view of the lack of a clear case for parametric statistics.

The statistical analysis performed for this study and the methods selected are presented in Exhibit 22. The Mann-

38/ Norman H. Nie, et al., Statistical Package for the Social Sciences 2nd ed., (New York: McGraw-Hill, Inc., 1975). See also, Rainer Pochubay and Diane Ludlow, "Computer Centre Handbook, Supplement 12: Popular Changes and Additions for SPSS Version 8.0", Concordia University, Montreal. SPSS program "FREQUENCIES" was used for the descriptive statistics.

39/ Selltiz, et al., Research Methods, p. 420.

Exhibit 22

Statistical Analysis and Methods Selected

Analysis	Methods
1. Examination of responses to part one of the questionnaire for demonstrable including: a) early versus late responses; and b) first versus second mailing.	1. a) and b) Mann-Whithney U test.
2. Investigation of response differences for the respondent grouping by: a) industry; b) accounting sector; and c) RIA designation year.	2. a), b) and c) Kruskal-Wallis Oneway Analysis of Variance.
3. Description of overall results to part one of the questionnaire: a) mean, median, standard deviation, skewness and kurtosis by topics for all returns and by sub-groups; and b) summarizing the respondents into groups based on their similarity on all variables considered simultaneously.	3. a) SPSS FREQUENCIES and SPSS CROSSTABS; and b) Factor Analysis.
4. Description of overall results to part two of the questionnaire: a) comparison of responses to parts one and two; and b) examination for significant differences in total ratings.	4. a) Spearman rho; and b) SPSS CROSSTABS.

Whitney U test (M-W U) was selected as the most appropriate test for comparisons between two groups.[40] It is a nonparametric equivalent of the t test and is a useful alternative to it.[41] When the M-W U is applied to data from very large samples which are appropriate to the t test, the M-W U has a power-efficiency which approaches 95.5%.[42] The M-W U requires random sampling and data which are at least ordinal; both of these requirements are met by this study's questionnaire data. The M-W U is used to determine if two independent samples belong to the same population and it is one of the best nonparametric techniques with respect to power.[43]

40/ For detailed discussions of the Mann-Whitney U test see: Hubert M. Blalock, Jr., Social Statistics, 2nd ed., (New York: McGraw-Hill, Inc., 1972) pp. 255-262; William L. Hays, Statistics for Psychologists, (New York: Holt, Rinehart and Winston, 1963) pp. 633-635; Siegel, Nonparametric Statistics, pp. 116-127.

41/ See Hays, Statistics for Psychologists, p. 635. He states that the Mann-Whitney U test "compares quite well with t" and, "for some special situations, it is even superior to t."

42/ Blalock, Social Statistics, p. 86.

43/ Hays, Statistics for Psychologists, p. 635.

The Kruskal-Wallis oneway analysis of variance (K-W) was used for comparisons between three or more groups.[44] The K-W is an extension of the M-W U, but, unlike the latter, the K-W is applicable when comparing any number of groups. The K-W makes the same assumptions about the data as the M-W U and, thus, can be meaningfully applied to the data in this study. The K-W is a nonparametric equivalent, and useful alternative to the parametric F test. When applied to data which meet the assumptions of the F test, the K-W has a power-efficiency of 95.5%.[45] The K-W is used to determine if some number of independent samples belong to the same population.

The SPSS subprogram NPAR TESTS was used to compute and indicate the significance levels for the M-W U and the K-W.[46] The procedures provided correction of the test statistics for tied ranks, a recommended adjustment to improve the sensitivity of the tests.[47]

44/ For detailed discussions of the Kruskal-Wallis oneway analysis of variance see: Blalock, Social Statistics, pp. 349-350; Hays, Statistics for Psychologists, pp. 637-639; Siegel, Nonparametric Statistics, pp. 184-194.

45/ Blalock, Social Statistics, p. 349.

46/ Pochubay and Ludlow, "Computer Centre Handbook", SPSS Subprogram NPAR Tests.

47/ Siegel, Nonparametric Statistics, p. 125.

SPSS subprogram FREQUENCIES[48] was used to obtain frequency distributions of respondents by each category of demographic information as well as frequency distributions for the questionnaire responses. Various descriptive statistics, e.g. the means, the modes, standard deviations, etc. were also provided for the questionnaire data. The subprogram CROSSTABS[49] was used to obtain crosstabulations of respondent characteristics and of respondent data for presentation in various exhibits in the study. This subprogram also provided **inter alia** the Chi squared statistical test.[50]

The Spearman rank correlation coefficient,[51] also called Spearman's rho, was used to compare the degree of association between various sets of ranking developed from the response data. Spearman's rho is a nonparametric statistic which requires that the variables being tested for association be at least an ordinal scale. The objects are

48/ Nie, et al., SPSS, pp. 194-202.

49/ Ibid. pp. 218-248.

50/ This nonparametric test is among the most widely used of all statistical procedures and is described in any general text of statistical methods. One text, Henry O. Lancaster, The Chi-squared Distribution (New York: John Wiley and Sons, Inc., 1969) is devoted exclusively to this test.

51/ Siegel, Nonparametric Statistics, pp. 202-213.

ranked in two ordered series. The rho computed based on the rank differences is compared to critical value of rho for the appropriate number of observations at the desired level of significance. If the observed rho is larger (either positive or negative) than the critical value, then an association is indicated between the variables. The larger the number, the greater the degree of association. Rho values range from -1 (perfect negative correlation) to +1 (perfect positive correlation). When compared to the Pearson r, the most powerful parametric correlation statistic, rho has a power-efficiency of about 91%.[52] The subprogram NONPAR CORR[53] provided the Spearman rho calculations.

Factor analysis was provided by the program FACTOR.[54] Factor analysis is an analytic technique which aims to explain observed relations among numerous variables in terms

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52/ Ibid., p. 213

53/ Nie, et al., SPSS, pp. 288-292.

54/ Ibid., pp. 468-514. This program offers a choice of five different factor analytic techniques and four alternative rotational methods. The choices made are discussed later.

of simpler relations.[55] This simplification can be the creation of a smaller set of hypothetical variables or the production of a set of classifications.

Factor analysis in this study was applied to the raw data from part one of the questionnaire in order to determine the most significant variables. The technique first transforms the raw data into a square, symmetrical correlation matrix. Next, this correlation matrix is resolved into an n x k factor matrix (the initial factors) where the number of factors (k) is usually much smaller than the number of variables (n). Finally, because there are many statistically equivalent ways to define the underlying dimensions of one set of data, the factor matrix is transposed (rotated) to achieve simpler and more meaningful factor patterns (the terminal factors). These factors can be regarded as underlying influences or dimensions which can be interpreted to explain the main relationships among the variables.

FACTOR provides five different factoring methods:

1. principal factoring without iteration (PA1);

2. principal factoring with iteration (PA2);

55/ See, in addition to SPSS, Dennis Child, The Essentials of Factor Analysis, (New York: Holt Rinehart and Winston, 1973) for a comprehensive discussion of this technique. Raymond B. Cattell has also written extensively on Factor Analysis, see, in particular, "Factor Analysis: An Introduction to Essentials", Biometrics 21 (1965): 190-215.

3. Rao's canonical factoring (RAO);

4. alpha factoring (ALPHA); and

5. image factoring (IMAGE).[56]

In addition, FACTOR provides four alternate rotation methods which can be chosen with any of the five factoring methods:

1. QUARTIMAX, orthogonal rotation which emphasizes simplification of the rows of a factor matrix;

2. VARIMAX, orthogonal rotation which emphasizes simplification of the columns of a factor matrix;

3. EQUIMAX, a compromise between numbers 1 and 2 above; and

4. OBLIQUE, oblique rotation which allows the final factors to be correlated.[57]

For this study principle factoring with iteration (PA2) was chosen as the most suitable method to apply to the data. PA2 is superior to PA1 because the iteration procedure improves the estimates of communality.[58] RAO, ALPHA and IMAGE make assumptions about the nature of the sample and any sampling errors. These assumptions are not

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56/ Nie et al., SPSS, pp. 478-482.

57/ Ibid., pp. 482-489. See, also, Harry H. Harman, Modern Factor Analysis, 3rd ed. (Chicago: The University of Chicago Press, 1976) pp.218-234.

58/ Ibid., p. 480.

appropriate for the data in this study. The three methods are also relatively new and their merits are still the subject of disagreement.[59]

PA2 is a more general and flexible method; it is more "user-friendly" than the other choices and is the most widely accepted factoring method.[60]

PA2 was applied to the study data in combination with each of the four rotation methods. Because the purpose of rotation is to simplify the terminal factor structure, each rotation method was used on the questionnaire part 1 data in combination with PA2 to produce four sets of terminal factors for comparison. Because there is no unique factor structure, one factor solution can be transformed to another without violating the basic assumptions or the mathematical properties of the solution.[61] Examination of the output revealed that VARIMAX produced the most useful set of terminal factors based on producing a reasonable number of meaningful factors while minimizing the number of variables which load high on more than one factor. Both of these characteristics are desirable in arriving at the factors which will be used to describe the data of this study.

59/ Ibid., pp. 481-482.

60/ Ibid., p. 480.

61/ Ibid., p. 472.

Examination for Nonresponse Bias

The body of inferential statistics used in connection with survey analysis assumes that all potential respondents return completed questionnaires.[62] When returns are less than the ideal 100%, a normal occurence, researchers must take adequate precautions to investigate the probability that the response data are free from systematic bias resulting from nonresponses. Only then can the respondents be said to remain a random sample. Without a 100% response, researchers can not prove the compatibility of nonrespondents' data with the data available from respondents, but they can show that they took reasonable precautions to examine for the possibility of significant nonresponse bias. Thus, examination for nonresponse bias involves the provision of sufficient evidence to <u>suggest</u> whether or not <u>material</u> nonresponse bias exists in a particular set of data.

Babbie states that the overall response rate of a survey is one guide to the representativeness of the respondents.[63] If a "high" response rate is achieved, there is less chance of significant response bias than if a

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62/ Babbie, <u>Survey Research Methods</u>, p. 165.

63/ Ibid.

"low" rate is achieved. Babbie provides these rules of thumb to evaluate mail questionnaire response rates:

1. at least fifty percent is adequate;
2. at least sixty percent is good; and
3. seventy percent or more is very good.[64]

Selltiz, et al. state that the proportion of mail questionnaire returns is usually low, varying from ten to fifty percent, with "high" returns of seventy to eighty percent possible but unusual.[65] Wallace states that there is less reason to suspect nonresponse bias when the population under investigation is relatively homogeneous.[66] He gives the example of Time magazine subscribers as a relatively homogeneous group when compared with the general U.S. population.

In the present survey, both the high response rate and the relative homogenity of the RIA population strongly indicate no **prima facie** reason to suspect the existence of significant nonresponse bias in the data collected. However, the response rate and homogenity of the population are only rough guides which by themselves do not demonstrate the presence or absence of nonresponse bias.

64/ Ibid.

65/ Selltiz, et al., Research Methods, p. 297.

66/ David Wallace, "A Case For-and Against-Mail Questionnaires", Public Opinion Quarterly 18 (Fall, 1954): 44-45.

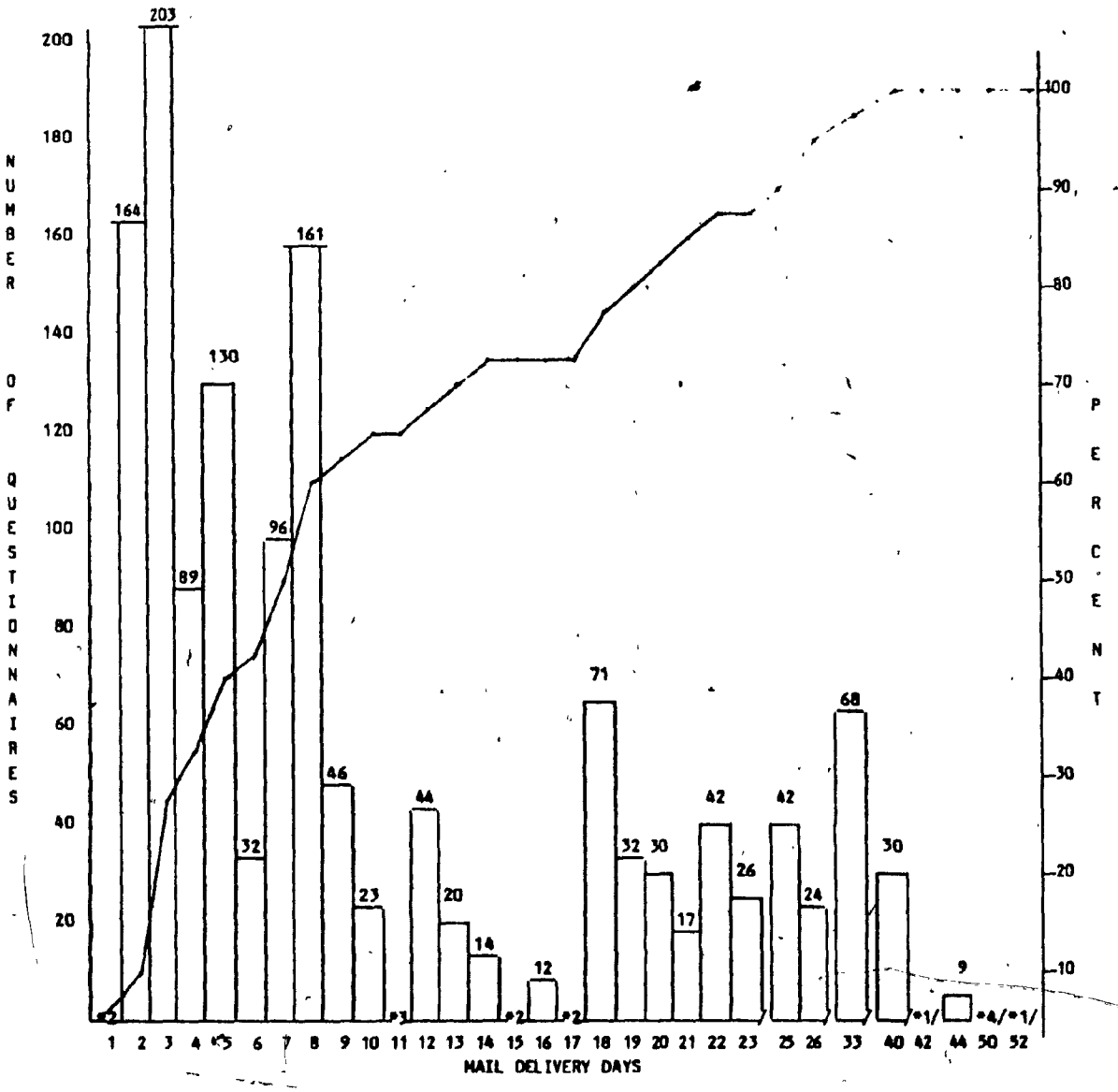
Researchers have developed two main approaches to the examination for nonresponse bias.[67] One approach compares the answers given by early respondents with those from later respondents. This comparison is based on the hypothesis that subjects who responded less readily are more like those who failed to respond at all than those who did respond readily. The second approach involves a comparison of the respondents with the nonrespondents on demographic or socio-economic dimensions. Both of these approaches are limited because of their implicit assumptions and because their results are not conclusive regarding nonresponse bias. However, in the absence of better techniques, they represent the most common methods used by researchers when investigating for nonresponse effects. As noted in Chapter 2 most of the studies discussed suffered from low return rates and many of these studies either ignored or failed to adequately examine for nonrespone bias. Those studies which included evaluation of nonrespose bias mainly used the "early versus late" type of analysis.

Exhibit 23 presents a histogram showing the number of questionnaires received on each mail delivery date along with the cummulative response percentage. Each mail delivery date was numbered consecutively to remove gaps in sequence because of weekends, etc. As the data in Exhibit

67/ Kanuk and Berenson, "Mail Surveys and Response Rates: A Literature Review", p. 448.

Exhibit 23

Questionnaires Received by Mail Delivery Days



Notes: 1. Left scale for bar chart, right scale for cumulative percentage.
2. * signifies numbers under five.
3. During days 1-10, inclusive, a total of 946 questionnaires (66.4% of the total responses) had been received.

23 show, there was a definite pause in the frequency of response returns just after the tenth delivery day. This breaking point in the returns was selected as the feature to designate early (up to and including the tenth day) returns versus later returns.

Exhibit 24 presents a crosstabulation of the responses by mail delivery day groups and by questionnaire mailings. As could be expected, the Chi squared Test for this crosstabulation indicates a systematic relationship exists between the delivery day groups and the questionnaire mailings.[68] However, a number of questionnaires from the first mailing (183, or 12.8% of total receipts) were received in the later delivery day group.

The following two null hypotheses about nonresponse bias are based on the "early versus late" approach:

1. H_0 There will be no significant differences between the questionnaire ratings on each of the 28 topics by early respondents (questionnaires received during delivery days 1-10) and by the later respondents.

2. H_0 There will be no significant differences between the questionnaire ratings on each of the 28 topics by respondents to the first questionnaire mailing and by respondents to the second questionnaire mailing.

68/ See Norman H. Nie, et al., SPSS, pp. 223-224.

Exhibit 24

Crosstabulation of Early/Late Responses with Questionnaire Mailing

Mail Delivery Day Groups	Questionnaire Mailings First	Second	Total
One to ten, inclusive	945	1	946
Eleven or more	183	296	479
	1128	297	1425

The first null hypothesis is based on a comparison of the 946 responses received by the tenth delivery day with the 479 responses received later (the row totals in Exhibit 24). The second null hypothesis is based on a comparison of the 1128 responses given to the first mailing with the 297 responses given to the second mailing (the column totals in Exhibit 24). Each null hypothesis was evaluated by conducting 28 separate statistical tests, one test on the response data for each of the topics in part one of the questionnaire for both hypotheses, a total of 56 tests. Part one responses were selected because they represent all of the 1425 respondents. Separate tests were conducted on each questionnaire topic, rather than on the answers to all topics, because this individual analysis could be expected to yield more meaningful results than an analysis based on aggregated data. The level of significance selected was $\sigma \leq .01$, ie. if an observed value of the test statistic has

an associated probability equal to or less than .01, the null hypothesis would be rejected for that topic.[69]

The Mann-Whitney U test was selected as the most appropriate test to determine whether to accept or reject each hypothesis. The appropriateness of the Mann-Whitney U test to these hypotheses tests is discussed in the section entitled Statistical Analysis. The results of the 28 tests for each null hypothesis, presented in Exhibit 25, show that each null hypothesis is retained and that there is no indication of significant nonresponse bias in the data collected by the survey.

Chapter Summary

This Chapter contains discussion of the research design objectives and selection of the methodology, the reasons for choosing the mail questionnaire method, the development of the questionnaire, the selection of the sample, questionnaire distribution procedures, description of respondents, preparation of the data for analysis, the selection of

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69/ The selection of a level of significance is based on the researcher's estimate of the importance of his findings (Siegel, Nonparametric Statistics, p. 9). Rejection of either null hypothesis at the .01 level suggests that the differences between the responses would not likely have resulted from sampling error in more than 1 in 100 replications.

EXHIBIT 25

Results of Mann-Whitney U Tests for Nonresponse Bias

Questionnaire Topics	Test Results[1]	
	a) Early versus late responses	b) First versus second mailing
Microeconomic Theory	.297	.492
Macroeconomic Theory	.497	.284
Longterm Finance	.250	.151
Organization Theory	.031	.056
Ethical Considerations	.072	.771
Information Content	.956	.146
Behavioural Implications	.140	.042
Motivation & Perception	.325	.041
Financial Statement Preparation	.861	.548
Conventional Valuation Bases	.958	.811
Other Valuation Bases	.896	.557
Major Regulatory Bodies	.819	.974
Tax Regulations	.827	.900
Other Groups	.589	.790
International Reporting	.412	.892
Social Measurement	.357	.829
Financial Statement Analysis	.531	.711
Working Capital	.520	.382
Capital Budgeting	.253	.282
Forecasting	.347	.202
Segment Accounting	.105	.117
Cost Behaviour	.347	.202
Variance Analysis	.342	.064
Independent Auditing	.461	.326
Internal Auditing	.123	.797
Computer Systems	.735	.340
Computer Programming	.879	.773
Quantitative Methods	.483	.090

Note: The figures shown are the probabilities associated with the U values after their conversion to Z values corrected for ties. See Pochubay and Ludlow Computer Centre Handbook 12, pp.30-31 and Siegel, Nonparametric Statistics, pp.116-126.

statistical tests and methods of analysis, and finally, examination for nonresponse bias.

The mail questionnaire is shown to be the most appropriate method to accomplish the objectives of the study. A questionnaire was developed based on VanZante's questionnaire and it was distributed by mail to a random sample of 2000 active RIAs in Canada, excluding those employed as full-time teachers. The response rates for the questionnaire were 71.3% for part one and 68.7% for part two. Comparison of the respondents' demographic data with distributions for the whole RIA population strongly indicates that a representative sample was achieved. After the questionnaire data were coded they were analyzed to provide descriptive statistics and group comparisons. The statistical methods selected are discussed, together with the reasons for their selection. Tests for nonresponse bias are explained and their results presented. These tests show no indication that significant nonresponse bias exists in the data.

Chapter 4 presents the results of the statistical analysis of the response data.

Chapter 4

RESULTS OF THE STUDY

Introduction

This Chapter reports the results of the analysis of respondents' ratings of importance on the 28 topics given in parts one and two of the questionnaire. Details of the target population, the questionnaire, the survey response rates, respondent profiles and the statistical methods employed are presented in Chapter 3.

The data for this study result from a survey of expert opinion which was designed to elicit the views of a significant number of RIAs representing the total RIA population. The purpose of this Chapter is to report the results of the data analysis. Chapter 5 presents the interpretation of these results.

The purpose of data analysis is to describe the data collected and to reveal significant features of the variables and their relationships. In this study, the independent variables are respondents' industry classifications (16 types), accounting sector (9 types) and year of RIA

designation[1], while the topic importance ratings (questionnaire, part one) and the topic weightings (questionnaire, part two) are the dependent variables. Analysis of questionnaire part one and part two data are presented separately in the following sections of this Chapter. A comparison of the results with the VanZante study results is also given. An additional section is devoted to discussion of the compatibility of the results from each of the two questionnaire parts.

Analysis of Topic Ratings

General Description

The first part of the questionnaire requested each respondent to rate, on a scale of zero (no importance) to five (extremely important), the importance of the selected management accounting topics to his present work experience. The data file for this part of the questionnaire consists of a matrix of 1425 rows (one for each respondent) and 28 columns (one for each zero to five question rating). These data from part one of the questionnaire are referred to in this paper as the topic ratings, while the data from

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[1]/ The formation of five designation year groups is discussed later in this Chapter.

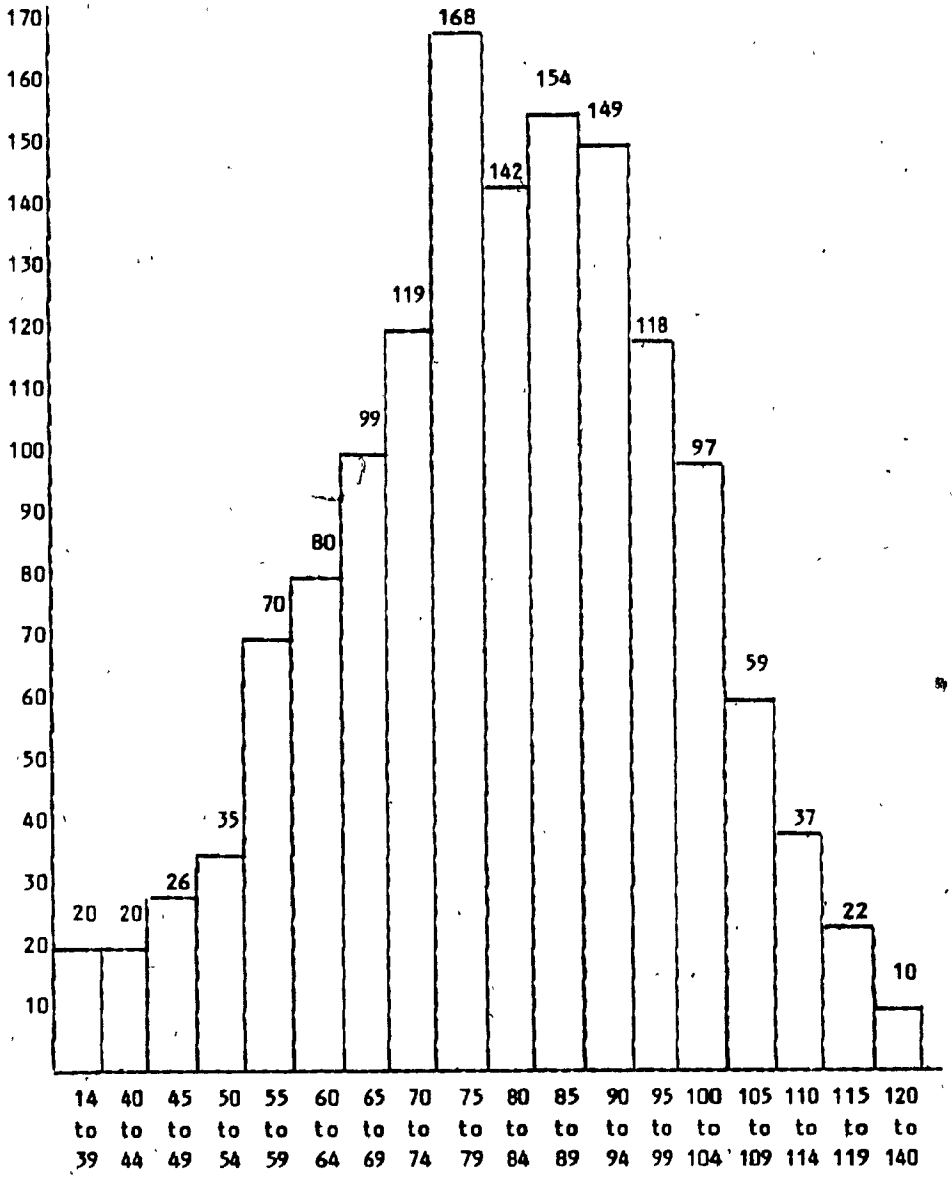
part two of the questionnaire, discussed in the next section, are referred to as the topic weightings.

This matrix (1425 by 28) of ratings can be viewed in two basic ways, first from a summation of the rows and second as an accumulation of the columns. Exhibit 26 presents a histogram of the individual respondent totals for all question ratings (summation of the rows). Each respondent could conceivably have given total ratings from 0 (28 times 0) to a maximum of 140 (28 times 5). The mean total for all respondents is 81.3 and the median and the mode are 81.9 and 77, respectively.[2] These statistics and the histogram (Exhibit 26) are only meaningful as descriptions of the distribution of total ratings over all respondents. In other words, summation of each individuals' 28 ratings into a single number provides a measure which can only be interpreted relative to the general distribution of all response totals. As shown in Exhibit 26, the distribution of rating totals is approximately normal. This approximation of the normal distribution tends to confirm research discussed in Chapter 3 which found that when sample sizes are sufficiently large the resulting questionnaire data tend to be normally distributed.

2/ The limitations of these descriptive statistics produced from ordinal data are discussed later in this section.

Exhibit 26

Histogram of Responses to the Questionnaire
Part One - Individual Response Totals for All Questions



Comparative percentages with the normal distribution:

Distance about the mean, plus or minus standard deviations of:	Population Percentage Included	
	Normal Distribution	Data for this Exhibit
1	68.3	69.2
2	95.4	96.1
3	99.7	99.6

Three different analysis based on column accumulations of the ratings matrix (1425 x 28) are present in the next three exhibits. Exhibit 27 is a histogram of the response frequencies for each of the six points on the rating scale for all questions and all respondents. The mean rating for Exhibit 27 is 2.90 which can be contrasted with an average rating of 2.50 for the six point scale. This contrast is also illustrated by the distribution in Exhibit 27 which is skewed towards the higher ratings.

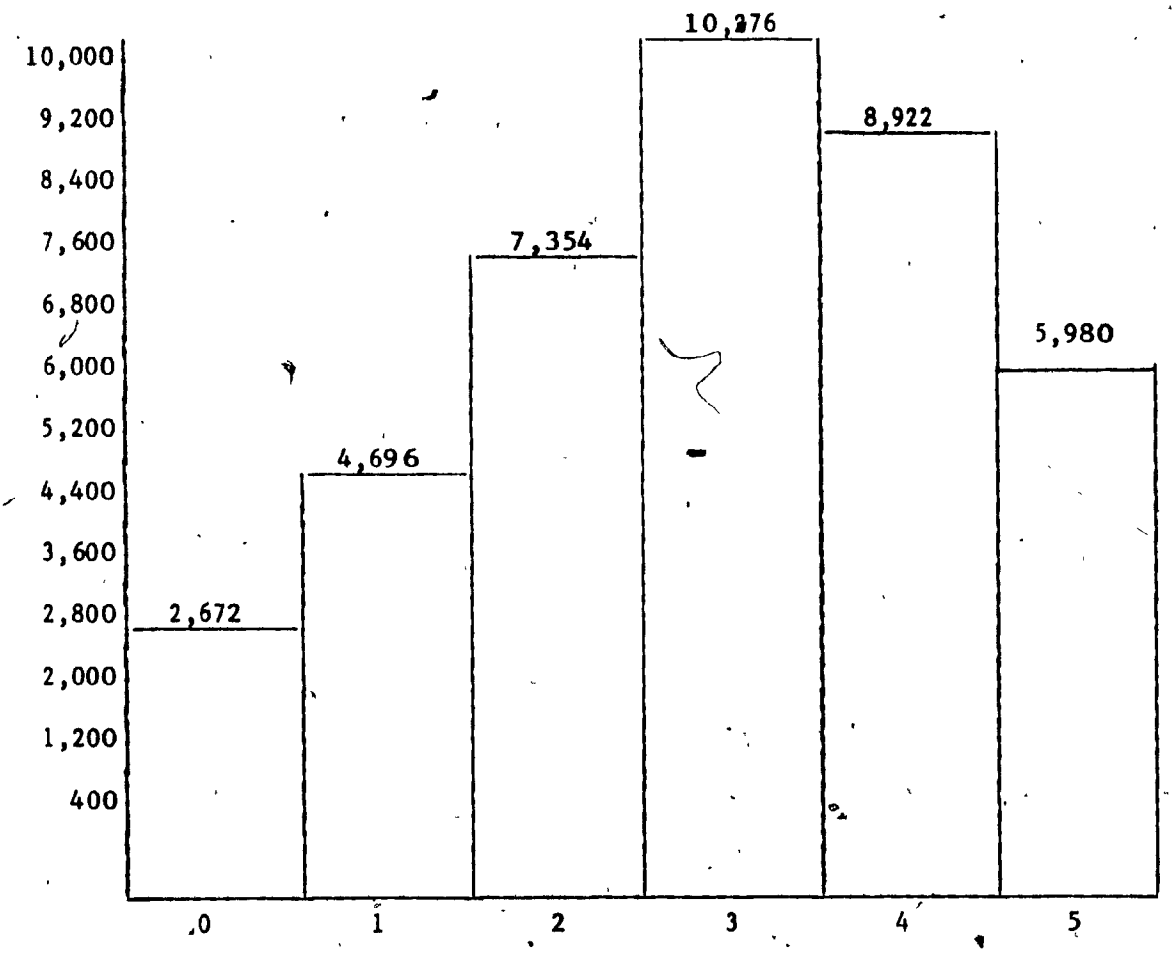
Exhibit 28 presents the percentages of respondents (N = 1425) rating each of the 28 topics in each of the six points of the rating scale. These percentages range from a low of .9% (0 rating on Information Content and Financial Statement Preparation) to a high of 34.7% (4 rating on Information Content).

Exhibit 29 presents descriptive statistics for each of the topics based on all respondents' ratings. The mean ratings range from 1.67 to 3.77 and they can be compared to the mean rating of 2.90 for the related distribution given in Exhibit 27.

Some researchers refrain from the presentation (or even the calculation) of means and standard deviations for data which are of ordinal measurement level. The medians are also presented for those readers who consider this statistic preferable when analyzing ordinal scale data. However, the

Exhibit 27

Histogram of Responses to the Questionnaire
Part One - Rating Totals for All Questions



Notes:

1. Histogram total:

1,425 respondents X 28 topic ratings = 39,900 respondents/topic ratings

2. Mean rating = 2.90

Exhibit 28

Responses to Part One of the Questionnaire in Percentages per Topic

Topics	Percentage Importance Ratings (N = 1425)					
	0	1	2	3	4	5
Microeconomic Theory	14.0	22.2	23.8	22.1	12.5	5.4
Macroeconomic Theory	9.0	17.8	23.9	29.4	14.6	5.2
Longterm Finance	7.2	12.7	19.6	24.6	22.5	13.5
Organization Theory	3.4	10.7	23.2	32.2	19.9	10.7
Ethical Considerations	1.8	7.7	15.5	28.0	27.4	19.5
Information Content	0.9	3.7	10.2	25.0	34.7	25.5
Behavioural Implications	1.3	6.2	15.8	30.6	31.2	14.9
Motivation & Perception	1.6	6.0	14.0	31.3	30.7	16.4
Financial Statement Preparation	0.9	3.9	9.5	22.7	29.2	33.8
Conventional Valuation Bases	2.9	6.2	14.0	30.4	27.0	19.6
Other Valuation Bases	6.7	15.5	28.1	30.8	14.5	4.4
Major Regulatory Bodies	6.9	15.4	28.6	26.0	15.3	7.7
Tax Regulations	6.5	10.6	17.8	21.8	20.6	22.7
Other Groups	6.6	15.9	28.5	30.6	15.2	3.3
International Reporting	25.9	23.8	22.7	16.2	8.2	3.2
Social Measurement	16.1	28.1	30.6	18.8	5.0	1.3
Financial Statement Analysis	4.6	7.8	13.3	20.8	29.1	24.4
Working Capital	3.6	8.6	12.8	26.3	28.3	20.5
Capital Budgeting	3.6	7.4	12.3	26.3	29.7	20.8
Forecasting	1.9	4.8	10.2	21.9	30.4	30.9
Segment Accounting	5.1	7.8	13.0	27.2	28.8	18.2
Cost Behaviour	5.1	8.1	14.2	24.0	27.5	21.0
Variance Analysis	3.8	6.9	14.8	24.6	30.4	19.5
Independent Auditing	4.9	10.2	20.0	29.9	21.1	13.8
Internal Auditing	3.6	9.1	17.1	29.9	26.0	14.2
Computer Systems	2.4	4.6	10.5	28.1	31.0	23.4
Computer Programming	17.5	23.1	25.8	21.3	7.9	4.4
Quantitative Methods	19.6	24.5	26.4	20.4	7.4	1.7

Note: Row totals differ by .1% from 100% because of rounding.

Exhibit 29

Descriptive Statistics of Topic Ratings
Questionnaire Part One

Topics	Mean	Median	Mode	Standard Deviation
Microeconomic Theory	2.13	2.08	2.0	1.40
Macroeconomic Theory	2.39	2.47	3.0	1.32
Longterm Finance	2.83	2.93	3.0	1.45
Organization Theory	2.87	2.90	3.0	1.25
Ethical Considerations	3.30	3.39	3.0	1.26
Information Content	3.65	3.79	4.0	1.13
Behavioural Implications	3.29	3.37	4.0	1.16
Motivation & Perception	3.33	3.41	3.0	1.18
Financial Statement Preparation	3.77	3.94	5.0	1.18
Conventional Valuation Bases	3.31	3.39	3.0	1.27
Other Valuation Bases	2.44	2.49	3.0	1.23
Major Regulatory Bodies	2.51	2.47	2.0	1.32
Tax Regulations	3.07	3.19	5.0	1.52
Other Groups	2.42	2.46	3.0	1.21
International Reporting	1.67	1.51	0.0	1.39
Social Measurement	1.72	1.69	2.0	1.17
Financial Statement Analysis	3.35	3.62	4.0	1.42
Working Capital	3.29	3.45	4.0	1.35
Capital Budgeting	3.33	3.52	4.0	1.33
Forecasting	3.67	3.87	5.0	1.25
Segment Accounting	3.22	3.39	4.0	1.37
Cost Behaviour	3.24	3.44	4.0	1.41
Variance Analysis	3.30	3.50	4.0	1.33
Independent Auditing	2.94	3.00	3.0	1.35
Internal Auditing	3.08	3.17	3.0	1.30
Computer Systems	3.51	3.64	4.0	1.22
Computer Programming	1.92	1.97	2.0	1.36
Quantitative Methods	1.77	1.72	2.0	1.28

differences between the means and the medians of the rating data in this study are relatively minor. As discussed earlier in this section, the individual response totals (Exhibit 26) closely approximate the normal distribution.

Interpretation of the means and the standard deviations strictly requires the assumption that the zero to five scale was perceived to be an equal interval scale by all respondents. While such an assumption can not be strongly supported, presentation of the means and standard deviations as descriptive statistics assist the understanding of the response data distributions. All of the studies reviewed in Chapter 2 which used questionnaire opinion surveys reported their results using means and many also reported the standard deviations. Thus, while some might object on technical grounds, there appears to be a consensus that the reporting of mean ratings and standard deviations aids in the description and interpretation of opinion survey results.

Exhibit 30 ranks the topics in order from highest to lowest mean rating along with the corresponding ranks by medians. The data upon which the ranks are based are given in Exhibit 29. Twelve topics (the six highest, the five lowest and the topic Independent Auditing) have the same ranks in both cases. The largest differences in ranks are for Conventional Valuation Bases (5 ranks difference),

Exhibit 30

Comparison of the Topic Rankings Based on Median Ratings with Topic Rankings Based on Mean Ratings
All Respondents

Topic Titles (Order on Questionnaire)	Ranks of Topics by Means	Ranks of Topics by Medians
Financial Statement Preparation (9)	1	1
Forecasting (20)	2	2
Information Content (6)	3	3
Computer Systems (26)	4	4
Financial Statement Analysis (17)	5	5
Capital Budgeting (19)	6	6
Motivation & Perception (8)	7	10
Conventional Valuation Bases (10)	8	13
Ethical Considerations (5)	9	11
Variance Analysis (23)	10	7
Behavioural Implications(7)	11	14
Working Capital (18)	12	8
Cost Behaviour (22)	13	9
Segment Accounting (21)	14	12
Internal Auditing (25)	15	16
Tax Regulations (13)	16	15
Independent Auditing (24)	17	17
Organization Theory (4)	18	19
Long-term Finance (3)	19	18
Major Regulatory Bodies(12)	20	22
Other Valuation Bases (11)	21	20
Other Groups (14)	22	23
Macroeconomic Theory (2)	23	21
Microeconomic Theory (1)	24	24
Computer Programming (27)	25	25
Quantitative Methods (28)	26	26
Social Measurement (16)	27	27
International Reporting(15)	28	28

Note: 1 = Highest, 28 = Lowest

Working Capital Management (4 ranks difference) and Cost Behaviour (4 ranks difference). Of the remaining topics, 3 have differences of 3 ranks, 4 have differences of 2 ranks and 6 have differences of 1 rank. Exhibit 31 summarizes these differences in ranks in a frequency distribution. The Spearman rho[3] for the two sets of ranks is .971 indicating a very high degree of association between them.[4]

Exhibit 31

Frequency Distribution of Differences Between Topic Rankings by Means and by Medians

Difference in Ranks	Number of Topics	Percentage of Total Topics	Cummulative Percentage
0	12	42.9%	42.9%
1	6	21.4%	64.3%
2	4	14.3%	78.6%
3	3	10.7%	89.3%
4	2	7.1%	96.4%
5	1	3.6%	100.0%
Totals	28	100.0%	

3/ The calculation and use of the Spearman rank correlation coefficient, or rho, are given in Chapter 3.

4/ Siegel, Nonparametric Statistics, Table P of the Appendix, p. 284, gives a significance level of .448 at the .01 level for rho when the number of ranks is 28. When an observed rho, e.g. .971 equals or exceeds the table value (.448), then the two rankings are associated. The larger the value of rho, the greater the degree of association between the two sets of rankings.

The topic rankings by means and by medians were also compared with the topic position numbers on the questionnaire. The resulting Spearman rho statistics, -.005 for mean ranks and -.076 for median ranks, show practically no relationship between the mean nor the median ranks and the position numbers. This lack of relationship strongly indicates that the ratings were not influenced by the topic sequence on the questionnaire.

The survey results include 26 different RIA designation years for the respondents (Exhibit 21). These 26 year groups range from 1 to 171 respondents each and it was necessary to regroup the respondents into categories which would facilitate analysis by designation year. The results of this regrouping are given in Exhibit 32. The major revision to the RIA program which was phased in during the years 1970-75[5] was used as the primary basis of group formation. Thus, the years 1975 and later were combined into one group and the years 1970-74 into another. Only 13 respondents had designation years prior to 1959 and they were combined with that year to form the earliest group. The years between 1959 and 1970 were then divided into two groups, each containing five years, in order to form a more balanced distribution.

5/ The details of RIA curriculum changes are given in Chapter 1.

Exhibit 32

Designation Year Categories of Respondents

Designation Year Category	RIA Designation Years Included	Number of Respondents (%) Questionnaire Part One
1	1959 and earlier	90 (6.3%)
2	1960 - 1964	100 (7.0%)
3	1965 - 1969	301 (21.1%)
4	1970 - 1974	495 (34.8%)
5	1975 - 1977	439 (30.8%)
	Totals	1425 (100.0%)

Comparison with the Results of the VanZante Study

As noted in Chapter 2, the CMA population sampled by VanZante differs significantly from the RIA population sampled for this study in size and profile. While VanZante recognized that his results were not representative of industrial management accountants, his target group, the current study encompasses a much more representative sample of all RIA management accountants, those in commercial as well as not-for-profit organizations. Thus, there is no **prima facie** reason to expect the results from the two studies to be the same.

Exhibit 33 shows the mean ratings for the current study along with the mean ratings reported by VanZante.[6] Generally, the mean ratings in VanZante study are higher than those in the current study. These higher ratings probably result from the different nature of the VanZante study's population, CMAs employed in industry. Only four topics (Tax Regulations, Other Groups, Computer Programming and Social Measurement) have higher ratings in the current study. Comparison of the rankings in Exhibit 33 for the two studies shows a Spearman rho value of .86, indicating a strong relationship between the ranks. However, except for the topic Forecasting which received the second highest mean rating in both studies, the ranks for the remaining topics all differ.

Exhibit 34 shows the topics ranked at differences of more than four ranks between the two studies. The first three of the four topics ranked lower in the current study are topics related to management accounting while the fourth relates to the financial management area. The first three of the four topics ranked higher in the current study relate to financial accounting while the fourth relates to the auditing area. Thus, respondents to the current study gave

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6/ Neal Roger VanZante, "A Survey of the Perceptions of Industrial CMAs on the Importance of Selected Management Accounting Topics," (Ph.D. dissertation, Oklahoma State University, 1976) p. 42.

Exhibit 33

Mean Ratings of Topics Current and Van Zante Studies
All Respondents

Topic Titles (Order on Questionnaire)	Current Study Mean Ratings (Ranks)	Van Zante Study Mean Ratings (Ranks)
Financial Statement Preparation (9)	3.77 (1)	3.89 (7)
Forecasting (20)	3.67 (2)	4.02 (2)
Information Content (6)	3.65 (3)	3.90 (6)
Computer Systems (26)	3.51 (4)	3.91 (5)
Financial Statement Analysis (17)	3.35 (5)	3.56 (11)
Capital Budgeting (19)	3.33 (6)	3.85 (8)
Motivation & Perception (8)	3.33 (7)	3.57 (10)
Conventional Valuation Bases (10)	3.31 (8)	3.45 (13)
Ethical Considerations (5)	3.30 (9)	3.37 (14)
Variance Analysis (23)	3.30 (10)	3.97 (3)
Behavioural Implications(7)	3.29 (11)	3.53 (12)
Working Capital (18)	3.29 (12)	3.61 (9)
Cost Behaviour (22)	3.24 (13)	4.07 (1)
Segment Accounting (21)	3.22 (14)	3.95 (4)
Internal Auditing (25)	3.08 (15)	3.14 (17)
Tax Regulations (13)	3.07 (16)	3.04 (18)
Independent Auditing (24)	2.94 (17)	3.18 (16)
Organization Theory (4)	2.87 (18)	3.00 (20)
Long-term Finance (3)	2.83 (19)	3.30 (15)
Major Regulatory Bodies(12)	2.51 (20)	3.01 (19)
Other Valuation Bases (11)	2.44 (21)	2.61 (23)
Other Groups (14)	2.42 (22)	2.28 (25)
Macroeconomic Theory (2)	2.39 (23)	2.76 (21)
Microeconomic Theory (1)	2.13 (24)	2.74 (22)
Computer Programming (27)	1.92 (25)	1.77 (27)
Quantitative Methods (28)	1.77 (26)	2.44 (24)
Social Measurement (16)	1.72 (27)	1.24 (28)
International Reporting(15)	1.67 (28)	1.91 (26)
All Topics	2.90	3.18

Note: 1 = Highest, 28 = Lowest

Exhibit 34

Main Differences in Topic Ranks with the VanZante Study

Topics	Differences in Ranks
a) Topics Ranked Four or More Ranks Lower in the Current Study (Questionnaire Order):	
Cost Behaviour (22)	12
Segment Accounting (21)	10
Variance Analysis (23)	7
Long-term Finance (3)	4
b) Topics Ranked Four or More Ranks Higher in the Current Study (Questionnaire Order):	
Financial Statement Preparation (9)	6
Financial Statement Analysis (17)	6
Conventional Valuation Bases (10)	5
Ethical Consideration (5)	5

relatively more emphasis to the topics related to financial accounting. However, comparison of the weighted means by curriculum area[7] in Exhibit 35 shows that the mean for each area was higher in all cases for the VanZante study.

This relative difference in emphasis between the Financial and the Management Accounting curriculum areas probably reflects the differences between the two populations. The population used for the VanZante study was more specialized and less representative of the broader spectrum of management accountants. The different rankings of the other two topics, Long-Term Finance and Ethical Considerations may relate to economic and cultural differences, respectively, or they may also reflect differences in the two populations.

Intragroup Analysis

The rating data were analyzed to investigate response differences for respondent groupings by industry, by accounting sector and by designation year. The Kruskal-Wallis oneway analysis of variance[8] was used to determine if the data revealed statistically significant differences among groups for each of the three sets of respondent groups

7/ The relationships between the topics and the curriculum areas are given in Appendix O and discussed in Chapter 5.

8/ The details of the statistical tests and their selection are given in Chapter 3.

Exhibit 35

Mean Ratings of Topics by RIA Curriculum Area,
Current and VanZante Studies
All Respondents

Curriculum Area	Mean Ratings[1]	
	Current Study	VanZante Study
Financial Accounting	2.69	2.80
Managerial Accounting	3.30	3.93
Organizational Behaviour, Economics and Report Writing	2.91	3.22
Legal Aspects of Business	2.70	2.73
Finance and Auditing	3.13	3.39
Computers and Systems	2.67	2.78
Quantitative Methods	2.53	3.07

Note: 1. The relationships between the topics and the RIA curriculum areas are given in Appendix O and discussed in Chapter 5.

and each of the 28 topics. The significance levels resulting from this analysis are reported in Exhibit 36. A small significance level indicates that at least one of the sub-groups differs in its rating of the topic from the related sub-groups. For example, a significance level of .01 indicates that statistically there is only one chance in one hundred that the differences among group ratings could be observed when no differences actually exist. In Exhibit 36 levels of .01 and less have been highlighted to indicate the more significant levels. Of course, selection of the .01 level to delineate significance is an arbitrary decision and all levels have been reported as suggested by Siegel, "so that the reader may use his own judgement [about significance]."[9]

Industry Sub-Group Analysis

As shown in Exhibit 36 column (1), for the industry sub-groups, only these 6 of the 28 topics show significance levels above the .01 level:

Ethical Considerations	.128
Behavioural Implications	.087
Social Measurement	.079
Computer Systems	.020
Computer Programming	.012
Quantitative Methods	.022

Thus, the ratings of topics by the industry sub-groups can be considered to be different on 22 of the 28 topics.

9/ Siegel, Nonparametric Statistics, p. 9.

Exhibit 36

Results of the Analysis of Respondent Group Differences
Questionnaire Part One - Ratings

Topics	Significance Level		
	Industry (1)	Accounting Sector (2)	Designation Year (3)
Microeconomic Theory	**.000**	**.000**	.051
Macroeconomic Theory	**.000**	**.000**	.545
Longterm Finance	**.000**	**.000**	.361
Organization Theory	**.000**	**.000**	.039
Ethical Considerations	.128	.044	**.001**
Information Content	**.003**	**.000**	.308
Behavioural Implications	.087	**.000**	.960
Motivation & Perception	**.003**	**.000**	.011
Financial Statement Preparation	**.000**	**.000**	.062
Conventional Valuation Bases	**.000**	**.000**	.473
Other Valuation Bases	**.000**	**.000**	.343
Major Regulatory Bodies	**.000**	**.000**	.400
Tax Regulations	**.000**	**.000**	.553
Other Groups	**.004**	**.000**	.088
International Reporting	**.000**	.091	.768
Social Measurement	.079	**.000**	**.007**
Financial Statement Analysis	**.000**	**.000**	.185
Working Capital	**.000**	**.000**	.786
Capital Budgeting	**.000**	**.000**	.810
Forecasting	**.000**	**.000**	.493
Segment Accounting	**.000**	**.000**	.176
Cost Behaviour	**.000**	**.000**	.636
Variance Analysis	**.000**	**.000**	.715
Independent Auditing	**.000**	**.000**	.129
Internal Auditing	**.000**	**.000**	.890
Computer Systems	.020	**.000**	.239
Computer Programming	.012	.011	.244
Quantitative Methods	.022	**.009**	.129

Note: The significance levels result from the Kruskal-Wallis oneway analysis of variance. Levels of .01 and lower are shown in italics.

The mean topic ratings for the industry sub-groups are given in Appendix H along with the overall means for each sub-group. These overall means are presented in Exhibit 37 in order of size. Although the overall means mask variability on individual topics, they do show how the sub-groups differed in their total ratings in part one of the questionnaire. The overall means range from 2.68 to 3.26, a difference of plus 12.4% and minus 7.6% around the mean for the population (2.90), showing moderate total variation among the sub-groups in their assessments of the importance of the topics as a whole.

Exhibit 37

Industry Sub-Groups - Overall Mean Ratings

Sub-Groups (N)	Means
Agriculture and Food (39)	3.26
Public Accounting (121)	3.18
Manufacturing (382)	3.00
Wholesale/Retail (102)	2.96
Other Commerce (24)	2.91
Finance/Insurance (63)	2.90
Other Industrial (29)	2.90
Construction (61)	2.88
Utilities (100)	2.88
Transportation (44)	2.84
Medical, Health and Welfare (30)	2.81
Municipal (30)	2.80
Education (20)	2.80
Natural Resources (78)	2.80
Federal (176)	2.68
Provincial (126)	2.68
All Respondents (1425)	2.90

The ranks of the industry sub-group means are presented in Appendix I where the topics are listed in order, from highest to lowest, of the population means. Review of the differences in ranks by sub-group gives additional insight into the variability in the ratings. These rankings in Appendix I are summarized in the next two exhibits.

First, Exhibit 38 provides a frequency distribution showing the number of occurences of rank differences between the industry sub-group rankings and the population rankings by the size of the differences. For example, in Appendix I the first sub-group shows the topic Financial Statement Preparation as fifth, a difference of 4 ranks from the total population ranking of first. Although the differences in ranks are as high as 15, over three-quarters (77.9%, Exhibit 38, column 3) of the comparisons reveal differences of 4 ranks or less. In the case of the weighted differences, over three-quarters (78%, Exhibit 38, column 5) of the total is accounted for by differences of 1 to 8 ranks.

Exhibit 39 provides a frequency distribution of the weighted variations for each of the industry sub-groups. The totals in Exhibit 39 represent for each sub-group the summation of these ranking differences for all the 28 topics. The Public Accounting and the Medical, Health and Welfare sub-groups show the greatest variations from the population rankings. However, the next five sub-groups

Exhibit 38

Industry Sub-Groups - Frequency Distribution of Topic Rank Differences from Total Population Rankings

	Frequency of Differences		Weighted Frequencies	
Number of Ranks Different (1)	Number (2)	Cumulative Percentage (3)	Amount[b] (4)	Cumulative Percentage (5)
0	67	15.0%	-	0.0%
1	110	39.5%	110	8.2%
2	81	57.6%	162	20.3%
3	58	70.5%	174	33.2%
4	33	77.9%	132	43.1%
5	16	81.5%	80	49.0%
6	23	86.6%	138	59.3%
7	13	89.5%	91	66.1%
8	20	94.0%	160	78.0%
9	9	96.0%	81	84.1%
10	4	96.8%	40	87.0%
11	5	98.0%	55	91.1%
12	2	98.4%	24	92.9%
13	4	99.3%	52	96.8%
14	2	99.8%	28	98.9%
15	1	100.0%	15	100.0%
Total	448[a]		1342	

[a] 16 sub-groups times 28 topics, equals 448.

[b] Column (1) times column (2).

Exhibit 39

Industry Sub-Groups - Total Variation in Topic Ranks

Sub-Groups (N)	Amount	Percent of Total	
		Each	Cummulative
Public Accounting (121)	125	9.3%	9.3%
Medical, Health and Welfare (30)	122	9.1%	18.4%
Municipal (30)	103	7.7%	26.1%
Construction (61)	98	7.3%	33.4%
Education (20)	98	7.3%	40.7%
Federal (176)	96	7.2%	47.8%
Provincial (126)	94	7.0%	54.8%
Other Industrial (29)	84	6.3%	61.1%
Manufacturing (382)	80	6.0%	67.1%
Wholesale/Retail (102)	74	5.5%	72.6%
Utilities (100)	73	5.4%	78.0%
Agriculture and Food (39)	72	5.4%	83.4%
Finance/Insurance (63)	64	4.8%	88.2%
Transportation (44)	61	4.5%	92.7%
Natural Resources (78)	50	3.7%	96.4%
Other Commerce (24)	48	3.6%	100.0%
Totals	1342[a]	100.0%[b]	

[a] This total is the weighted total of rank differences, see column (3) in Exibit 38.

[b] Difference of .1% due to rounding.

which include the three government sub-groups along with Education and Construction, each show almost as much variation as each of the first two sub-groups. The implications of the differences on individual questionnaire topics are discussed in Chapter 5.

Accounting Sector Sub-Group Analysis

As shown in Exhibit 36 column (2), for the accounting sector sub-groups, only these 3 of the 28 topics show significance levels above the .01 level:

Ethical Considerations	.044
International Reporting	.091
Computer Programming	.012

Thus, the ratings of topics by accounting sector sub-groups can be considered to be different on 25 of the 28 topics.

The mean topic ratings for the accounting sector sub-groups are given in Appendix J along with the overall means for each sub-group. These overall means are presented in Exhibit 40 in order of size. Although the overall means mask variability on individual topics, they do show how the sub-groups differed in their total ratings in part one of the questionnaire. The overall means range from 2.67 to 3.20, a difference of plus 10.3% and minus 7.9% around the mean for the population (2.90), showing moderate total variation among the sub-groups in their assessments of the importance of the topics as a whole.

Exhibit 40

Accounting Sector Sub-Groups - Overall Mean Ratings

Sub-Groups (N)	Means
Public Accountant (79)	3.20
General Manager (89)	3.14
Senior Financial Officer (407)	3.09
Manager (233)	2.85
Other (45)	2.84
System Analyst (35)	2.83
Accountant (244)	2.75
Supervisor (159)	2.71
Internal Auditor (134)	2.67
All Respondents (1425)	2.90

The ranks of the accounting sector sub-group means are presented in Appendix K where the topics are listed in order, from highest to lowest, of the population means. Review of the differences in ranks by sub-group gives additional insight into the variability in the ratings. These rankings in Appendix K are summarized in the next two exhibits.

First, Exhibit 41 provides a frequency distribution showing the number of occurences of rank differences between the accounting sector sub-group rankings and the population rankings by the size of the differences. For example, in Appendix K the first sub-group shows the topic Financial Statement Preparation as first, no difference from the total

Exhibit 41

Accounting Sector Sub-Groups - Frequency Distribution of Topic Rank Differences from Total Population Rankings

Number of Ranks Different (1)	Frequency of Differences: Number (2)	Frequency of Differences: Cumulative Percentage (3)	Weighted Frequencies: Amount[b] (4)	Weighted Frequencies: Cumulative Percentage (5)
0	51	20.2%	-	0.0%
1	63	45.2%	63	8.2%
2	29	56.7%	58	15.7%
3	28	67.9%	84	26.5%
4	18	75.0%	72	35.8%
5	17	81.7%	85	46.8%
6	10	85.7%	60	54.6%
7	9	89.3%	63	62.7%
8	6	91.7%	48	69.0%
9	3	92.9%	27	72.4%
10	6	95.2%	60	80.2%
11	1	95.6%	11	81.6%
12	3	96.8%	36	86.3%
13	6	99.2%	78	96.4%
14	2	100.0%	28	100.0%
Total	252[a]		773	

[a] 9 sub-groups times 28 topics, equals 252.

[b] Column (1) times column (2).

population ranking of first. However, the second sub-group shows a difference of 3, fourth versus first. Although the differences in ranks are as high as 14, three-quarters (75%, Exhibit 41, column 3) of the comparisons reveal differences of 4 ranks or less. In the case of the weighted differences, over three-quarters (80.2%, Exhibit 41, column 5) of the total is accounted for by differences of 1 to 10 ranks.

Exhibit 42 provides a frequency distribution of the weighted variations for each of the accounting sector sub-groups. The totals in Exhibit 42 represent for each sub-group the summation of these ranking differences for all the 28 topics. The Public Accountant, Internal Auditor, General Manager and System Analyst sub-groups show the greatest variations from the population rankings and account for 62.9% of the total differences. Each of the remaining five sub-groups shows approximately one-half as much variation as each of the first four categories comprising 62.9%. The implications of these differences on individual questionnaire topics are discussed in Chapter 5.

Designation Year Sub-Group Analysis

As shown in Exhibit 36 column (3), for the designation year sub-groups, only 2 of the 28 topics show significance levels below the .01 level. These are:

Ethical Considerations	.001
Social Measurement	.007

Exhibit 42

Accounting Sector Sub-Groups
Total Variation in Topic Ranks

Sub-Groups (N)	Amount	Percent of Total	
		Each	Cummulative
Public Accountant (79)	132	17.1%	17.1%
Internal Auditor (134)	128	16.6%	33.6%
General Manager (89)	114	14.7%	48.4%
System Analyst (35)	112	14.5%	62.9%
Supervisor (233)	64	8.3%	71.2%
Manager (159)	60	7.8%	78.9%
Other (45)	59	7.6%	86.5%
Senior Financial Officer (407)	58	7.5%	94.0%
Accountant (244)	46	6.0%	100.0%
	773[a]	100.0%[b]	

[a] This total is the weighted total of rank differences, see column 4 in Exhibit 41.

[b] Difference of .1% due to rounding.

Thus, the ratings of topics by designation year sub-groups can be considered to be different on only 2 of the 28 topics.

The mean topic ratings for the designation year sub-groups are given in Appendix L along with the overall means for each sub-group. These overall means are also presented in Exhibit 43. Although the overall means mask variability on individual topics, they do show how the sub-groups varied in their total ratings in part one of the questionnaire. The overall means range from 2.86 to 3.00, a difference of plus 3.4% and minus 1.4% around the mean for the population

(2.90), showing very little total variation among these sub-groups in their assessments of the importance of the topics as a whole.

Exhibit 43

Designation Year Sub-Groups - Overall Mean Ratings

Sub-Groups (N)	Means
1. Years 1959 and earlier (90)	3.00
2. Years 1960-1964 (100)	2.91
3. Years 1965-1969 (301)	2.90
4. Years 1970-1974 (495)	2.92
5. Years 1975-1977 (439)	2.86

The ranks of the designation year sub-group means are presented in Appendix M where the topics are listed in order, from highest to lowest, of the population means. Review of the differences in ranks by sub-group gives additional insight into the variability in the ratings. These rankings in Appendix M are summarized in the next two exhibits.

First, Exhibit 44 provides a frequency distribution showing the number of occurences of rank differences between the designation year sub-group rankings and the population rankings by the size of the differences. For example, in Appendix L the first sub-group shows the topic Forecasting as fourth, a difference of 2 ranks from the total population

Exhibit 44

Designation Year Sub-Groups - Frequency Distribution of Topic Rank Differences from Total Population Rankings

Number of Ranks Different (1)	Frequency of Differences: Number (2)	Frequency of Differences: Cumulative Percentage (3)	Weighted Frequencies: Amount[b] (4)	Weighted Frequencies: Cumulative Percentage (5)
0	46	32.9%	-	0.0%
1	46	65.7%	46	24.0%
2	25	83.6%	50	50.0%
3	13	92.9%	39	70.3%
4	2	94.3%	8	74.5%
5	1	95.0%	5	77.1%
6	5	98.6%	30	92.7%
7	2	100.0%	14	100.0%
Total	140[a]		192	

[a] 5 sub-groups times 28 topics, equals 140.

[b] Column (1) times column (2).

ranking of second. Although the differences in ranks range up to 7, 83.6% of the comparisons (Exhibit 44, column 3) reveal differences of 2 ranks or less. In the case of the weighted differences, almost three-quarters (74.5, Exhibit 44, column 5) of the total is accounted for by differences of 1 to 4 ranks.

Exhibit 45 provides a frequency distribution of the weighted variations for each of the designation year sub-groups. The totals in Exhibit 45 represent for each sub-group the summation of these ranking differences for all the 28 topics. Two of the sub-groups, numbers 2 and 4, show the highest differences in ranks. Sub-groups 1 and 3 each show approximately equal percentage variations, while the latest sub-group, number 5, shows the least. The implications of these differences on individual questionnaire topics are discussed in Chapter 5.

Exhibit 45

Designation Year Sub-Groups - Total Variation in Topic Ranks

Groups	Amount	Percent of Total	
		Each	Cummulative
1. Years 1959 and earlier (90)	36	18.8%	18.8%
2. Years 1960-1964 (100)	50	26.0%	44.8%
3. Years 1965-1969 (301)	34	17.7%	62.5%
4. Years 1970-1974 (495)	42	21.9%	84.4%
5. Years 1975-1977 (439)	30	15.6%	100.0%
	192[a]	100.0%	

[a] This total is the weighted total of rank differences, see column 4 in Exhibit 44.

Analysis of Topic Weightings

General Description

There were 1373 respondents who completed part two of the questionnaire (the topic weightings) while 1425 respondents completed part one (the topic ratings). As discussed in Chapter 3, none of the 52 respondents omitting completion of part two provided any information which could help to explain the omission. Although the high proportion of respondents answering both questionnaire sections (96.4% of the responses) implies that the usable responses from section two would still provide representative data, this implication was also tested statistically.

The Mann-Whitney U test[10] was used to determine if the respondents to both parts of the questionnaire (N = 1373) showed differences in their part one ratings from the ratings given by those who responded to part one only (N = 52). The results of the tests on each topic are presented in Exhibit 46. For 2 of the 28 topics (Information Content .007, and Computer Systems .001) the ratings show differences between the groups which are below the .01 significance level. However, the remaining 26 topics indicate generally high probabilities that the groups do not differ

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10/ The details of the statistical tests and their selection are given in Chapter 3.

Exhibit 46

Result of Mann-Whitney U Tests for Ratings by Respondents To Parts One and Two Versus Part One Only

Questionnaire Topics (in Questionnaire Order)	Test Results[1]
Microeconomic Theory	.662
Macroeconomic Theory	.874
Longterm Finance	.655
Organization Theory	.797
Ethical Considerations	.362
Information Content	.007
Behavioural Implications	.720
Motivation & Perception	.917
Financial Statement Preparation	.578
Conventional Valuation Bases	.822
Other Valuation Bases	.406
Major Regulatory Bodies	.259
Tax Regulations	.012
Other Groups	.963
International Reporting	.755
Social Measurement	.425
Financial Statement Analysis	.352
Working Capital	.281
Capital Budgeting	.877
Forecasting	.332
Segment Accounting	.787
Cost Behaviour	.671
Variance Analysis	.154
Independent Auditing	.553
Internal Auditing	.374
Computer Systems	.001
Computer Programming	.079
Quantitative Methods	.725

1. The figures shown are the probabilities associated with the U values after their conversion to Z values corrected for ties. See Pochubay and Ludlow Computer Centre Handbook 12, pp. 30-31 and Siegel, Nonparametric Statistics, pp. 116-126.

in their ratings. When performing a series of 28 statistical tests on related data, it is also not unreasonable to expect one or two of the tests to show significant differences. Based on the strong majority of 26 of the 28 probabilities, the usefulness of the weightings given in part two of the questionnaire does not appear to be materially impaired because 3.6% of the respondents did not complete part two.

The data collected in part two of the questionnaire can be conceptualized as a 1373 x 28 matrix. The 1373 rows represent the respondents and each row total equals 100% for that respondent. Each row contains at least 23 zeros because respondents were restricted to five topics over which to allocate 100%. The total percentage points for all respondents is 137,300 (1373 x 100). The column totals, then, represent the number of percentage points (out of a total of 137,300 points) which each topic received. These totals by topic and the related percentages of the total points which the topics received are presented in Exhibit 47. Had respondents given equal weightings to all topics, each topic would have received about 3.57% of the total (100% divided by 28 topics). The first 13 of the 28 topics all have total point percentages above 3.57% (the mean percentage) and together they account for 72.2% of the total

Exhibit 47

Percentage of Weightings By Topic

Topic Titles (Order on Questionnaire)	Total Number of Points per Topic	Percentage of Total Points	
		Per Topic	Cummulative
Forecasting (20)	12,443	9.1%	9.1%
Financial Statement Preparation (9)	11,338	8.3%	17.4%
Financial Statement Analysis (17)	10,584	7.7%	25.1%
Computer Systems (26)	10,428	7.6%	32.7%
Tax Regulations (13)	9,247	6.7%	39.4%
Motivation & Perception (8)	8,626	6.3%	45.7%
Information Content (6)	8,082	5.9%	51.6%
Cost Behaviour (22)	7,424	5.4%	57.0%
Variance Analysis (23)	6,721	4.9%	61.9%
Capital Budgeting (19)	6,144	4.5%	66.4%
Working Capital Mgmt (18)	5,735	4.2%	70.6%
Internal Auditing (25)	5,320	3.9%	74.5%
Segment Accounting (21)	5,114	3.7%	78.2%
Behavioural Implications of Information (7)	4,590	3.3%	81.5%
Longterm Finance (3)	4,157	3.0%	84.5%
Ethical Considerations (5)	3,517	2.6%	87.1%
Organization Theory (4)	3,204	2.3%	89.4%
Independent Auditing (24)	3,126	2.3%	91.7%
Conventional Valuation Bases (10)	2,692	2.0%	93.7%
Microeconomic Theory (1)	1,754	1.3%	95.0%
Macroeconomic Theory (2)	1,564	1.1%	96.1%
Major Regulatory Bodies(12)	1,551	1.1%	97.2%
Computer Programming (27)	1,040	0.8%	98.0%
Other Groups (14)	850	0.6%	98.6%
Quantitative Methods (28)	655	0.5%	99.1%
Other Valuation Bases (11)	609	0.4%	99.5%
International Reporting(15)	589	0.4%	99.9%
Social Measurement & Reporting (16)	196	0.1%	100.0%
Totals	137,300[a]	100.0%	

[a] Number of respondents to part two of the questionnaire (1373), times 100 points each.

points. The lowest ranked 10 of the 28 topics together received only 8.3% of the total points.

Exhibit 48 ranks the topics in order from highest to lowest percentage weighting along with the corresponding ranks based upon numbers of respondents weighting the topic. The data upon which the ranks are based are given in Exhibit 47. Of the 28 topics, 16 have identical ranks in both cases while 4 differ by 2 ranks and 8 differ by 1 rank. Comparison of the two sets of ranks shows a Spearman rho value of .99, indicating a very high degree of agreement. This correlation statistic is a measure of how evenly respondents allocated the percentage points over the topics. Perfect positive correlation would indicate that on the average each respondent gave an identical amount to each of the topics he weighted. Thus, the correlation between the two sets of rankings in Exhibit 48 indicates very slight variation from identical weightings per respondent on the topics chosen for weighting.

This relationship between numbers of respondents and ranking percentages is also illustrated in Exhibit 49. As the Exhibit shows, respondents' weightings range from below 5% to a high of 85%. However, the range from 10% to 25% per topic includes 77.5% of the total weightings, providing further indication of the tendency for respondents to avoid extreme ratings.

Exhibit 48

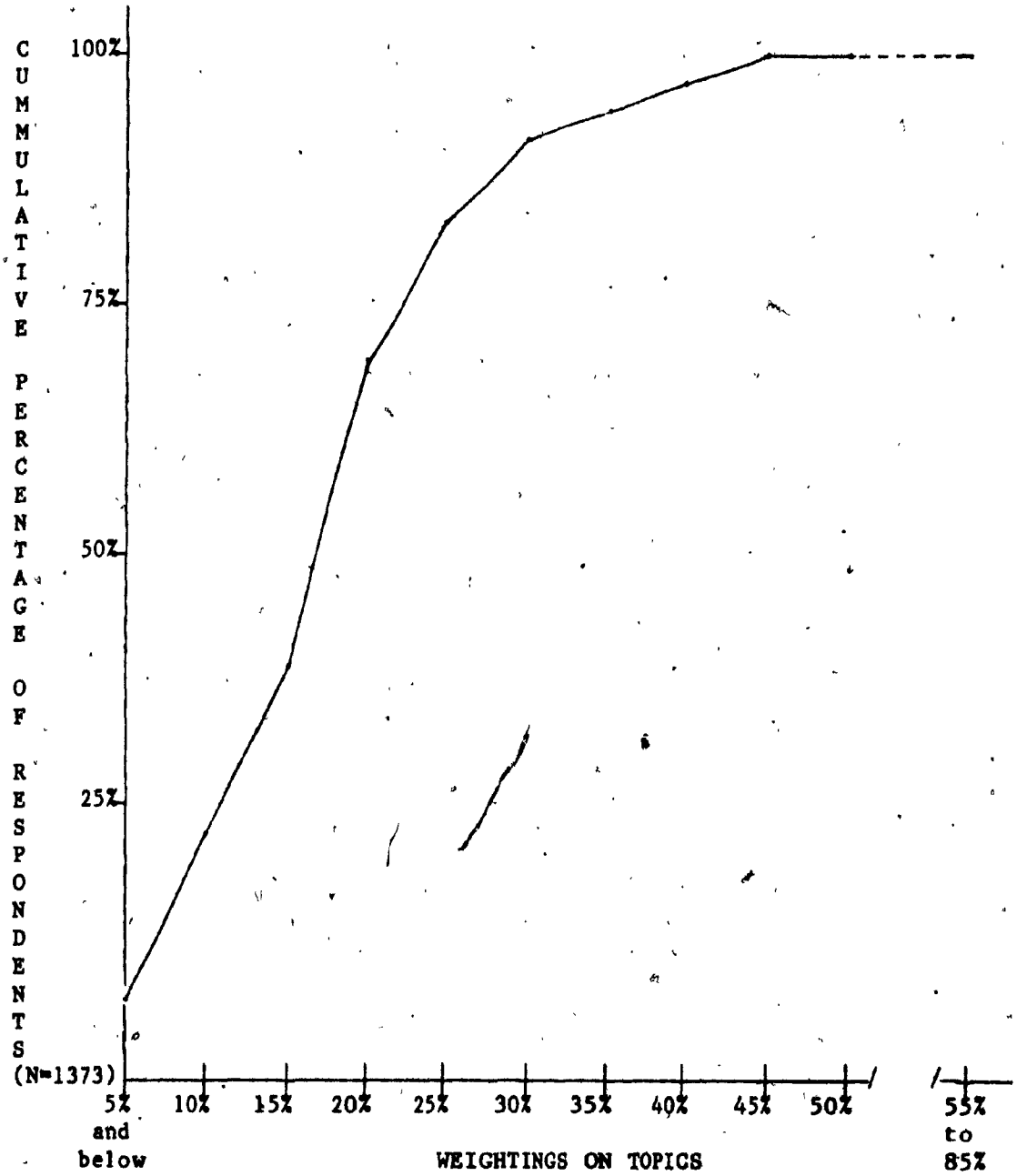
Comparison of the Topic Rankings Based on Weightings with Topic Rankings Based on Respondents

Topic Titles (Order on Questionnaire)	Ranks of Topics by Weightings	Ranks of Topics by number of Respondents Per Topic(N=1373)
Forecasting (20)	1	1 (577)
Financial Statement Preparation (9)	2	2 (524)
Financial Statement Analysis (17)	3	4 (495)
Computer Systems (26)	4	3 (511)
Tax Regulations (13)	5	7 (371)
Motivation & Perception (8)	6	6 (391)
Information Content (6)	7	5 (424)
Cost Behaviour (22)	8	8 (359)
Variance Analysis (23)	9	9 (346)
Capital Budgeting (19)	10	10 (334)
Working Capital (18)	11	12 (279)
Internal Auditing (25)	12	14 (235)
Segment Accounting (21)	13	11 (286)
Behavioural Implications(7)	14	13 (254)
Longterm Finance (3)	15	15 (208)
Ethical Considerations (5)	16	16 (204)
Organization Theory (4)	17	17 (185)
Independent Auditing (24)	18	19 (173)
Conventional Valuation Bases (10)	19	18 (185)
Microeconomic Theory (1)	20	20 (93)
Macroeconomic Theory (2)	21	22 (89)
Major Regulatory Bodies(12)	22	21 (92)
Computer Programming (27)	23	23 (60)
Other Groups (14)	24	24 (52)
Quantitative Methods (28)	25	25 (43)
Other Valuation Bases (11)	26	26 (42)
International Reporting(15)	27	27 (36)
Social Measurement (16)	28	28 (13)

Note: 1 = Highest, 28 = Lowest

Exhibit 49

Proportions of Respondents for Individual Weightings



Note: On the scale for weightings, the points representing 10% to 50% include those points plus or minus any ratings within 2.5% of each point, eg. the point 10% includes the range 8.5% - 12.4%. Most respondents' weightings were in numbers divisible evenly by 5%.

Comparison of Questionnaire Parts One and Two Results

Exhibit 50 ranks the topics in order from highest to lowest mean rating (questionnaire, part one) along with the corresponding ranks by the weightings (questionnaire, part two). The data upon which the ranks are based are given in Exhibit 29 (mean and median ratings) and Exhibit 47 (weightings). Exhibit 51 summarizes the differences in ranks between the mean ratings and the weightings in a frequency distribution. The largest differences in ranks are for the topics Conventional Valuation Bases and Tax Regulations, which differ by eleven ranks and for Ethical Considerations, which differs by seven ranks. The other 25 topics, which are almost 90% of the total, differ by 5 ranks or less.

Exhibit 52 gives a frequency distribution of the differences in ranks between the median ratings and the weightings. The largest difference of 10 ranks is for the topic Tax Regulations. Twenty-five of the topics, 90% of the total, differ by 5 ranks or less. This percentage for differences of 5 ranks or less is the same in Exhibits 51 and 52, however, the topic names are not the same in both cases. Systematic examination of the ranking differences by topics failed to reveal any pattern which could assist in explaining these differences, other than their apparent result from the discontinuous nature of the weightings.

Exhibit 50

Comparison of the Topic Rankings Based on Mean and Median Ratings with Topic Rankings Based on Weightings
All Respondents

Topic Titles (Order on Questionnaire)	Ranks of Topics by Means	Ranks of Topics by Weightings	Ranks of Topics by Medians
Financial Statement Preparation (9)	1	2	1
Forecasting (20)	2	1	2
Information Content (6)	3	7	3
Computer Systems (26)	4	4	4
Financial Statement Analysis (17)	5	3	5
Capital Budgeting (19)	6	10	6
Motivation & Perception (8)	7	6	10
Conventional Valuation Bases (10)	8	19	13
Ethical Considerations (5)	9	16	11
Variance Analysis (23)	10	9	7
Behavioural Implications(7)	11	14	14
Working Capital (18)	12	11	8
Cost Behaviour (22)	13	8	9
Segment Accounting (21)	14	13	12
Internal Auditing (25)	15	12	16
Tax Regulations (13)	16	5	15
Independent Auditing (24)	17	18	17
Organization Theory (4)	18	17	19
Long-term Finance (3)	19	15	18
Major Regulatory Bodies(12)	20	22	22
Other Valuation Bases (11)	21	26	20
Other Groups (14)	22	24	23
Macroeconomic Theory (2)	23	21	21
Microeconomic Theory (1)	24	20	24
Computer Programming (27)	25	23	25
Quantitative Methods (28)	26	25	26
Social Measurement (16)	27	28	27
International Reporting(15)	28	27	28

Note: 1 = Highest, 28 = Lowest

Exhibit 51

Frequency Distribution of Differences Between Topic Rankings by Mean Ratings and by Weightings

Difference in Ranks	Number of Topics	Percentage of Total Topics	Cummulative Percentage
0	1	3.6%	3.6%
1	11	39.3%	42.9%
2	5	17.9%	60.8%
3	2	7.1%	67.9%
4	4	14.3%	82.2%
5	2	7.1%	89.3%
7	1	3.6%	92.9%
11	2	7.1%	100.0%
Totals	28	100.0%	

Exhibit 52

Frequency Distribution of Differences Between Topic Ranks by Median Ratings and by Weightings

Difference in Ranks	Number of Topics	Percentage of Total Topics	Cummulative Percentage
0	4	14.3%	14.3%
1	9	32.1%	46.4%
2	4	14.3%	60.7%
3	2	7.1%	67.8%
4	5	17.9%	85.7%
5	1	3.6%	89.3%
6	2	7.1%	96.4%
10	1	3.6%	100.0%
Totals	28	100.0%	

The degree of association between the two sets of rankings was measured using Spearman's rho and the following values were computed:

a) rankings by weights versus rankings by means, rho = .876; and

b) rankings by weights versus rankings by medians, rho = .912.

These rho values indicated very strong relationships between the pairs of rankings.

The weightings collected in part two of the questionnaire were obtained to provide a basis of comparison with the rankings based on the means and medians from part one of the questionnaire. Because respondents were asked to rank only 5 of the 28 topics, the data from part two could not be expected to give the identical rankings as the data from part one. However, the comparisons given in this section along with the Spearman rho calculations, lend considerable support to the ranks based on part one of the questionnaire.

Factor Analysis of Part One Responses

The responses (N = 1425) from part one of the questionnaire were factor analyzed using SPSS' subprogram PA2 (prin-

cipal factoring with iteration) and the VARIMAX rotation option.[11] Factor analysis is useful because it reduces an entire set of data into factors and ranks them in descending order according to their ability to explain the variations in the entire set of data. Thus, highly weighted variables for the first factor are the variables explaining the highest percentage of the variation in the complete survey.

Exhibit 53 presents the 7 factors which result from this factor analysis of the part one questionnaire data; the complete factor matrix is presented in Appendix N. A cut-off point for the reporting of factors was established using a minimum eigenvalue of 1. As recommended by Rummel, initially all factors with eigenvalues greater than zero were extracted and then those factors with eigenvalues near 1 were evaluated for their interpretability.[12] Child also recommends that factors with eigenvalues below 1 be excluded and he states that this cut-off point is most reliable when the number of variables, 28 in this study, is between 20 and 50.[13]

11/ The details of factor analysis and the options selected are given in Chapter 3.

12/ R.J. Rummel, Applied Factor Analysis (Evanston: Northwestern University Press, 1970) pp. 169-170.

13/ Dennis Child, The Essentials of Factor Analysis (New York: Holt, Rinehart and Winston, 1973) p. 43.

Exhibit 53

Summary and Labels of Factors -
All Responses, Questionnaire Part 1

Factor	TITLE and Topics Loading .40	Loading	Percentage of Variance by Factor	Percentage of Variance Cumulative
1	FINANCIAL ACCOUNTING		46.0%	46.0%
	Conventional Valuation Bases	.82		
	Financial Statement Preparation	.75		
	Other Valuation Bases	.66		
	Major Regulatory Bodies	.60		
	Financial Statement Analysis	.47		
	Tax Regulations	.45		
	Working Capital Management	.40		
2	MANAGEMENT ACCOUNTING		17.7%	63.7%
	Variance Analysis	.77		
	Cost Behaviour	.77		
	Segment Accounting	.65		
	Forecasting	.60		
	Capital Budgeting	.49		
3	HUMAN BEHAVIOUR		13.3%	77.0%
	Behavioural Implications of Information	.73		
	Information Content	.62		
	Motivation and Perception	.57		
	Organization Theory	.55		
	Ethical Considerations	.44		
4	FINANCE, ECONOMICS, AND SPECIAL REPORTING REQUIREMENTS		8.1%	85.1%
	Macroeconomics	.65		
	Microeconomics	.61		
	Longterm Finance	.47		
	Social Measurement and Reporting	.43		
	Other Groups	.42		
	International Reporting	.42		
5	COMPUTERS AND QUANTITATIVE TECHNIQUE		6.8%	91.9%
	Computer Programming	.76		
	Computer Systems	.62		
	Quantitative Methods	.55		

Factor names were given each factor based on the "descriptive approach."[14] This means that factor names are based on the selection of labels which best reflect the contents of the topics loaded highly on each factor. The selection of a cut-off point is based on examination of the factor loadings for a meaningful breaking point. Levels from .30 to .60 are commonly used. Examination of the factor matrices in this study led to the selection of .40, a commonly used level, as the most meaningful point for the delineation of high versus low loadings in descriptions of the results.

As shown in Exhibit 53, the first five factors account for 91.9% of the variation in the responses. Each of these five factors describes certain dimensions as illustrated by the loadings for each topic on each factor.

Factor 1, Financial Accounting, explains 46% of the total variation in the respondents ratings of the topics. The loadings on this factor show that the seven traditional financial accounting topics, including the topic Tax Regulations, were the most important dimensions in describing the respondents' ratings.

Factor 2, Management Accounting, explains 17.7% of the total variation. The five topics, generally considered to

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14/ Rummel, Applied Factor Analysis, pp. 475-477.

be basic components of management accounting, are heavily loaded on this factor.

Factor 3, Human Behaviour, explains 8.1% of the total variation. The five topics loading heavily on this factor all relate to the human behavioural dimension of respondents' work.

Factor 4, Finance and Reporting Requirements, explains 8.1% of the variance and groups six topics. The first three relate to economics and long-term finance which make up the finance element of Factor 4. The last three all relate to special reporting requirements.

Factor 5, Computers and Related Techniques, explains 6.8% of the variance. This topic was included after examination of the topic loadings showed the factor could contribute to the interpretation even though the eigenvalue for the factor was slightly below the cut-off point of 1.0. The three topics loading heavily on this topic related to computers and to mathematical techniques usually performed on computers.

The five factors in Exhibit 53 show a total of 26 topics; two topics, Independent Auditing and Internal Auditing, did not load above .40 on any factor. The closest loading to the .40 cut-off is for the topic Independent Auditing on Factor 1 (a loading of .382). The remaining loadings of the two topics are low. The relationships

between the five factors and the RIA curriculum are discussed in Chapter 5.

Reduction of Sub-Groups and Analysis of Formations

Industry Sub-Groups

The responses to part one of the questionnaire were factor analyzed by industry sub-group and the resulting 16 factor matrices were examined in detail to determine similarities and differences in the factor patterns. Exhibit 54 indicates the results of the factor analysis of the topic ratings by each industry sub-group. The sub-groups are listed in the Exhibit in descending order of their factor pattern similarity to the factor pattern for the results from all respondents. The sequence in Exhibit 54 shows some relationship to the numbers of respondents in each group; however sub-group size does not completely account for the sequence in the Exhibit.

Exhibit 55 summarizes the previous analysis of the sixteen industry sub-groups. For this summary and to facilitate further analysis the sub-groups have been placed into three formations.

The sub-groups have been placed into formations, as portrayed in Exhibit 55, on the basis of the nature of their activities. First the manufacturing and merchandising sub-

Exhibit 54

Summary and Comparison of Factor Patterns
Industry Sub-Groups and All Respondents

Sequence[1]	Sub-Groups(N)	Number of All Respondent Factors Similar to Sub-Group Factors	Comparison of Factor Ordering with All Respondent Results
1	Federal(176)	1. Five	1. Identical
2	Construction(61)	2. Five	2. Different (1;3;5;2;4)[2]
3	Manufacturing(382) Finance and Insurance(63) Provincial(126) and Public Utilities(100)	3. Four	3. Different (no common pattern)
4	Wholesale/Retail(102) Public Accounting(121) and Medical, Health and Welfare(30)	4. Four	4. Different (no common pattern), with one all respondent factor split into two sub-group factors.
5	Natural Resources(78) and Other Commerce(24)	5. Three	5. Different (no common pattern), with one or more all respondent factors split into two or more sub-group factors.
6	Transportation(44) and Education(20)	6. Two	6. Different (no common pattern), with one or more all respondent factors split into two or more sub-group factors.
7	Agriculture and Food(39) Other Industrial(29)	7. Two	7. Different (very mixed patterns).

Notes: 1. The sequence represents a descending order of factor pattern similarity from 1 (most similar) to 7 (least similar).

2. Construction sub-group factor numbers in sequence related to the five factors for all respondents.

Exhibit 55

Summary of the Analysis of Industry Sub-Groups

FORMATIONS(N) and Sub-Groups(N)	Ranks of Sub-Groups Means[1]	Total Variation in Topic Ranks[2]	Factor Pattern Grouping[3]
A. MANUFACTURING AND MERCHANDISING(691):			
Manufacturing(382)	3	80	3
Construction(61)	8	98	2
Natural Resources(78)	14	50	5
Agriculture and Food(39)	1	72	7
Other Industrial(29)	7	84	7
Wholesale/Retail(102)	4	74	4
Formation Means	2.98	77	3.7
B. COMMERCIAL AND SERVICE(352):			
Finance/Insurance(63)	6	64	3
Other Commerce(24)	5	48	5
Transportation(44)	10	61	6
Utilities(100)	9	73	3
Public Accounting(121)	2	125	4
Formation Means	2.98	86	3.9
C. GOVERNMENT AND OTHER NON-PROFIT(382):			
Federal(176)	15	96	1
Provincial(126)	16	94	3
Municipal(30)	12	103	7
Education(20)	13	98	6
Medical, Health and Welfare(30)	11	122	4
Formation Means	2.71	73	2.6

Notes: 1. See Exhibit 37
2. See Exhibit 39
3. See Exhibit 56

groups were put into one formation. Then, the commercial and service sub-groups were placed into a second formation. Finally, the government and non-profit sub-groups were formed into the third formation. The summary in Exhibit 55 shows that formations A and B are similar in their means and factor pattern groupings. Formation C shows the lowest of the three ratings, indicating that the topics were generally less important to the government and non-profit sub-groups. Formation B shows the largest variation in topic ranks from the topic ranks by all respondents. This perhaps indicates the more diverse mix of sub-groups in formation B.

The mean responses by each of the three industry formations were analyzed to investigate for response differences. The Mann-Whitney U test was used to determine if these data revealed statistically significant differences among the three formations on each of the 28 topics.[15] The significance levels resulting from the analysis are reported in columns 1 to 3 of Appendix P. As in previous analysis in this study, a significance level of .01 or lower was selected to highlight the more significant levels.[16] The relationships among the formations and the implications of

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15/ The details of the statistical tests and their selection are given in Chapter 3.

16/ The choice of this significance level is discussed in the section "Intragroup Analysis" in this Chapter.

these results for specialization in the RIA curriculum are discussed in Chapter 5.

Responses to part one of the questionnaire by each formation were also factor analyzed to facilitate further assessment.[17] The resulting three factor matrices, showing factors with eigenvalues near 1 and higher, are presented in Appendices Q (formation A), R (formation B) and S (formation C). The implications of these results for specialization in the RIA curriculum are discussed in Chapter 5.

Accounting Sector Sub-Groups

Exhibit 56 indicates the results of the factor analysis of the topic ratings by each accounting sector sub-group. The sub-groups are listed in the Exhibit in descending order of their factor pattern similarity to the factor pattern for the results from all respondents. The sequence in Exhibit 56 shows no relationship between the numbers of respondents in each sub-group and the sequence.

Exhibit 57 summarizes the analysis of the accounting sector sub-groups. In the Exhibit the sub-groups have been placed into two formations to facilitate further analysis. The sub-groups have been placed into formations based on

17/ The details of factor analysis and the options selected (PA2 and VARIMAX) are given in Chapter 3.

Exhibit 56

Summary and Comparison of Factor Patterns
Accounting Sector Sub-Groups and All Respondents

Sequence[1]	Sub-Groups(N)	Number of All Respondent Factors Similar to Sub-Group Factors	Comparison of Factor Ordering with All Respondent Results
1	Accountant(244) and Manager(233)	1. Five	1. Identical
2	Supervisor(159)	2. Four	2. Different (3;1;nil;2;5)[2]
3	Public Accountant(79) Internal Auditor(134) Systems Analyst(35) and Others(45)	3. Four	3. Different (no common pattern), with one or more all respondent factors split into two or more sub-group factors.
4	General Manager(89)	4. Three	4. Different (1;3;2;nil;nil)[2]
5	Senior Finance Officer(407)	5. Three	5. Different, with one all respondent factor split into two sub-group factors. (2and3;2;4;2;nil)[2]

Notes: 1. The sequence represents a descending order of factor pattern similarity from 1 (most similar) to 5 (least similar).

2. The sequence shows the sub-group factor numbers in the sequence of the five factors for all respondents.

Exhibit 57

Summary of the Analysis of Accounting Sector Sub-Groups

FORMATIONS(N) and Sub-Groups(N)	Ranks of Sub-Groups Means[1]	Total Variation in Topic Ranks[2]	Factor Pattern Grouping[3]
D. GENERAL ACCOUNTANCY(1132):			
Accountant(244)	7	46	1
Supervisor(159)	8	64	2
Manager(233)	4	60	1
Senior Financial Officer(407)	3	58	5
General Manager(89)	2	114	4
Formation Means	2.92	61	2.8
E. SPECIALIZED ACCOUNTANCY(293):			
Public Accountant(79)	1	132	3
Internal Auditor(134)	9	128	3
Systems Analyst(35)	6	112	3
Other(45)	5	59	3
Formation Means	2.86	117	3

Notes: 1. See Exhibit 40
2. See Exhibit 42
3. See Exhibit 56

whether they represent general accountancy, formation D, or specialized accountancy, formation E. As might be anticipated, the specialized accountancy formation shows more variation in topic ranks and a slightly lower mean rating.

The mean responses by each of the two accounting sector formations were analyzed to investigate for response differences. The Mann-Whitney U test was used to determine if these data revealed statistically significant differences between the two formations on each of the 28 topics.[18] The significance levels resulting from the analysis are reported in column 4 of Appendix P. As in previous analysis in this study, a significance level of .01 or lower was selected to highlight the more significant levels.[19] The relationship between the formations and the implications of these results for specialization in the RIA curriculum are discussed in Chapter 5.

Responses to part one of the questionnaire by each formation were also factor analyzed to facilitate further assessment.[20] The resulting two factor matrices are

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18/ The details of the statistical tests and their selection are given in Chapter 3.

19/ The choice of this significance level is discussed in the section "Intragroup Analysis" in this Chapter.

20/ The details of factor analysis and the options selected (PA2 and VARIMAX) are given in Chapter 3.

presented in Appendices T (general accountancy) and U (specialized accountancy). The implications of these results for specialization in the RIA curriculum are discussed in Chapter 5.

Designation Year Sub-Groups

Exhibit 58 indicates the results of the factor analysis of the topic ratings by each designation year sub-group. The sub-groups are listed in the Exhibit in descending order of their factor pattern similarity to the factor pattern for the results from all respondents. The sub-group sequence in the Exhibit does not reveal any relationship to the sub-group chronological order.

Exhibit 59 summarizes the analysis of the designation year sub-groups. In the Exhibit the sub-groups have been placed into two formations to facilitate further analysis. These formations are based on the year 1969 with the earlier years, formation F, and the year 1970 with the later years, formation G. The year 1970 was chosen as the point of demarkation because the RIA program underwent major revisions starting in 1970. The summary in Exhibit 59 affirms, as has been shown previously in detail, that the designation year sub-groups do not differ very much in their responses.

The mean responses by each of the two designation year sub-groups were analyzed to investigate for response differ-

Exhibit 58

Summary and Comparison of Factor Patterns
Designation Year Sub-Groups and All Respondents

Sequence[1]	Sub-Groups(N)	Number of All Respondent Factors Similar to Sub-Group Factors	Comparison of Factor Ordering with All Respondent Results
1	4. Years 1970-1974(495) and 1. Years 1959 and earlier(90)	1. Five	1. Different (no common pattern)
2	5. Years 1975-1977(439)	2. Four	2. Same
3	2. Years 1960-1964(100) and 3. Years 1965 to 1969(301)	3. Four	3. Different (no common pattern)

Notes: 1. The sequence represents a descending order of factor pattern similarity from 1 (most similar) to 3 (least similar).

Exhibit 59

Summary of the Analysis of Designation Year Sub-Groups

FORMATIONS(N) and Sub-Groups(N)	Ranks of Sub-Groups Means[1]	Total Variation in Topic Ranks[2]	Factor Pattern Grouping[3]
F. EARLY CURRICULUM YEARS(491):			
1. 1959 and Earlier(90)	1	36	1
2. 1960-1964(100)	3	50	3
3. 1965-1969(301)	4	34	3
Means	2.92	38	2.6
G. LATER CURRICULUM YEARS(934):			
4. 1970-1974(495)	2	42	1
5. 1975-1977(439)	5	30	2
Means	2.89	36.4	1.5

Notes: 1. See Exhibit 43
2. See Exhibit 45
3. See Exhibit 58

ences. The Mann-Whitney U test was used to determine if these data revealed statistically significant differences between the two formations.[21] The significance levels resulting from the analysis are reported in column 5 of Appendix P. As in previous analysis in this study, a significance level of .01 was selected to highlight the more significant levels.[22] The relationship between the formations and the implications of these results for RIA professional development needs are discussed in Chapter 5.

Responses to part one of the questionnaire by each formation were also factor analyzed to facilitate further assessment.[23] The resulting two factor matrices are presented in Appendices V (early curriculum years) and W (later curriculum years). The implications of these results for RIA professional development are discussed in Chapter 5.

21/ The details of the statistical tests and their selection are given in Chapter 3.

22/ The choice of this significance level is discussed in the section "Intragroup Analysis" in this Chapter.

23/ The details of factor analysis and the options selected (PA2 and VARIMAX) are given in Chapter 3.

Chapter Summary

The results of the analysis of responses to the questionnaire are reported in this Chapter. A general description is given of the responses to part one of the questionnaire (the topic ratings) along with illustrative exhibits and statistics. A comparison of the part one results with the results of the VanZante study is also made.

Next, the results of intragroup analysis to investigate response differences for respondent groupings by industry, by accounting sector and by designation year are presented and discussed. The ratings by each sub-group are given along with discussion of their different ratings of the topics.

A general description of the responses to part two of the questionnaire is reported next, followed by comparisons of the results from both parts of the questionnaire. These comparisons lend considerable support to the compatibility of the results from each part of the questionnaire.

The factor analysis of the ratings is discussed in the next section. The ratings by all respondents as well as by industrial, accounting sector and designation year sub-groups were factor analyzed to yield sets of factors for comparison.

In the final section the respondent sub-groups are combined into formations based on their sub-group characteristics. Then the data for each of these group formations are analyzed to reveal similarities and differences.

The implications of the results for the RIA curriculum, for specialized education needs and for RIA professional development are the subject of Chapter 5.

Chapter 5

FINDINGS AND IMPLICATIONS OF THE RESULTS

Introduction

The purpose of this study is to determine and analyse the perceptions of practicing RIAs on the importance of selected management accounting topics in meeting the responsibilities of their current employment. This information is provided in response to the need for research to help link the education and practice of management accounting. Specifically, the study is intended to provide information for assessments of:

1. the RIA curriculum;
2. the need for specialized educational modules in the RIA curriculum; and
3. the professional development needs of RIAs.

Chapter 2 presents the review of related literature. Selection and explanation of the research methodology employed to achieve the objectives of the study are given in Chapter 3. Results of the survey and observations based on the data are related in Chapter 4. The current Chapter

reports the findings and the implications of the study's results.

This Chapter contains two main sections. First, the implications of the results and the findings for the RIA curriculum are presented. Second, the implications and findings concerning the need for specialized RIA curriculum modules and relating to RIA professional development are reported.

Findings and Implications for the RIA Curriculum

The contents of the current RIA curriculum subjects were examined to establish their relationships to the questionnaire topics. Based upon his examination of the subject material of each course, the researcher prepared a list of topic to course relationships. SMA also provided a topic to course listing prepared independently from the researcher's list.[1] These two listings were generally in agreement and minor differences were reconciled by further reference to SMA course material. The only significant difference was for the topic Segment Accounting, related to Management Accounting on the researcher's list, but not connected to a course on the SMA list. Reference to course

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1/ Mark Alldis, Research Manager, SMA, to F.L. Sbrocchi, September 21, 1981.

material showed that Segment Accounting could be included in the Management Accounting area. The topic "Major Regulatory Bodies" was weighted over the four courses to which it is logically related, and "Social Measurement" was included in the Financial Accounting area.

Next, topics which were related to more than one course were weighted to reflect their relative contributions to the courses. These topic to course weights were based on the amount of course lesson coverage for each topic relative to the total lessons for all topics in the related course. Thus, the weights for these shared topics reflect their proportional content in each course.

Exhibit 60 shows the relationships among the areas of the RIA Body of Knowledge (BOK), the RIA courses areas and the questionnaire topics. Appendix O shows the weights between the topics and the courses. Each of the topics is related to at least one course area. Two courses are omitted from the topic to course relationships because these two courses have only indirect links to the topics. First, Business Mathematics is omitted because "... this course is remedial in nature" and was accorded a zero weighting of relative importance in the BOK.[2] Inclusion of Business Mathematics would also merely duplicate some of the coverage in the Quantitative Methods courses.

2/ SMA, Body of Knowledge, p. 37.

Exhibit 60

Relationships of Topics to the RIA Body of Knowledge

RIA BODY OF KNOWLEDGE AREAS (Relative Importance %) and Courses[1]	Questionnaire Topics[2] (Sequence)
1.A. FINANCIAL ACCOUNTING (20%)	
11 Principles of Accounting 21 Accounting Theory and Problems 43 Selected Topics and Contemporary Issues in Accounting	Financial Statement Preparation(9) Conventional Valuation Bases(10) Other Valuation Bases(11) Major Regulatory Bodies(12) International Reporting(15) Social Measurement(16) Financial Statement Analysis(17) Working Capital(18)
1.B. MANAGEMENT ACCOUNTING (15%)	
31 Accounting for Cost Determination, Analysis and Control 41 Accounting for Management Planning and Control	Behavioural Implications(7) Forecasting(20) Segment Accounting(21) Cost Behaviour(22) Variance Analysis(23)
2. ORGANIZATION BEHAVIOUR, ECONOMICS AND REPORT WRITING (15%)	
12 Introductory Economics 13 Report Writing 23 Organizational Behaviour	Microeconomic Theory(1) Macroeconomic Theory(2) Organization Theory(4) Information Content(6) Behavioural Implications(7) Motivation & Perception(8) Major Regulatory Bodies(12)
3. LEGAL ASPECTS OF BUSINESS (10%)	
22 Commercial Law 24 Taxation	Major Regulatory Bodies(12) Tax Regulations(13) Other Groups(14)

Exhibit 60 (continued)

RIA BODY OF KNOWLEDGE AREAS (Relative Importance %) and Courses[1]	Questionnaire Topics[2] (Sequence)
4. FINANCE AND AUDITING (10%)	
42 Financial Management 52 Operational Auditing	Long-term Finance(3) Ethical Considerations(5) Financial Statement Analysis(17) Working Capital(18) Capital Budgeting(19) Independent Auditing(24) Internal Auditing(25) Computer Systems(26)
5. COMPUTERS AND SYSTEMS (10%)	
14 Data Processing Equipment and Programming 51 Information Systems: Analysis, Design and Implementation	Computer Systems(26) Computer Programming(27)
6. MANAGEMENT (10%)	
53 Management: Processes and Problems	Note 3
7. QUANTITATIVE METHODS (10%)	
32 Quantitative Methods for Analysis and Decision-Making: Part I 33 Quantitative Methods for Analysis and Decision-Making: Part II	Forecasting(20) Quantitative Methods(28)

Notes: 1. See Exhibits 2, 3 and SMA, Body of Knowledge, p. 26.

2. The weights applicable for the allocations of topics to courses are given in Appendix O.

3. This is a "terminal and integrative course" (SMA, Body of Knowledge, p. 42), which is related to knowledge in most of the other six areas. Thus, no topics relate primarily to this area of the Body of Knowledge.

The area Management and the related course Management Processes and Problems are both omitted because the course is intended "to integrate the knowledge acquired from all the courses...".[3] Thus, none of the topics relates primarily to this area of the BOK and inclusion of this area would only duplicate topic coverage in the other areas.

Exhibit 61 shows the topic relationships to the five main factors resulting from the factor analysis[4] and to the RIA course areas. Examination of this Exhibit shows a very high degree of relationship between the factors and the course areas. Only one course area, Finance and Auditing, can not be directly related to any one of the factors. Thus, the factor analysis results generally conform to the course coverage areas. This finding is not surprising but it does confirm what would be reasonably expected.

Exhibit 62 and 63 summarize the questionnaire responses by subject area according to the topic to course area relationships given in Exhibit 60 and the weights in Appendix O. Exhibit 62 gives the distributions of responses from part one of the questionnaire together with the combined mean for each group. Exhibit 63 shows the relative weights by subject from the BOK compared with the relative weight

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3/ Ibid., p. 42, emphasis in original text.

4/ See Exhibit 53 in Chapter 4.

Exhibit 61

Topic Relationships to Factors and to RIA Course Areas

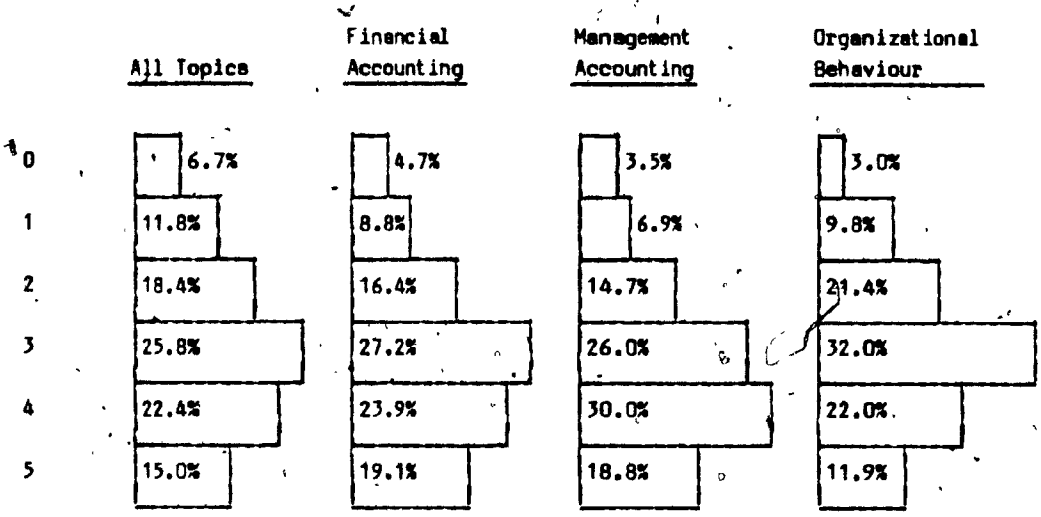
Factor Numbers and Names	Course Areas	Topics in Common[1]	Topic Differences[2]
1. Financial Accounting	Financial Accounting and Taxation	9-13 inclusive 17 and 18	15, 16
2. Management Accounting	Management Accounting	19-23 inclusive	7
3. Human Behaviour	Organizational Behaviour and Report Writing	4 and 6-8 inclusive	5
4. Finance and Reporting Requirements	Economics and Commercial Law	1, 2 and 14	3, 15 and 16
5. Computer and Related Techniques	Computer Systems and Quantitative Methods	26, 27, 28	20
6. None	Finance and Auditing	NIL	3,5,17-19 inclusive and 24-26 inclusive

Notes: 1. Topic numbers refer to the questionnaire sequence, see Exhibit 25. The complete factor matrix is presented at Appendix N.

2. Topic numbers in regular print are included in the course area but not in the related factor, while the case is reversed for those printed in italics.

Exhibit 62

Responses to Part One of the Questionnaire
by Course Area



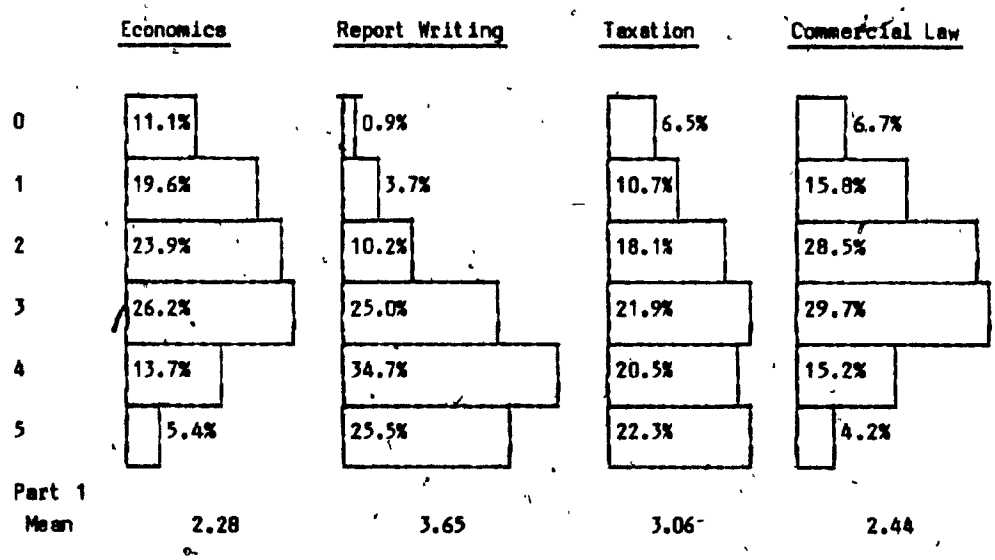
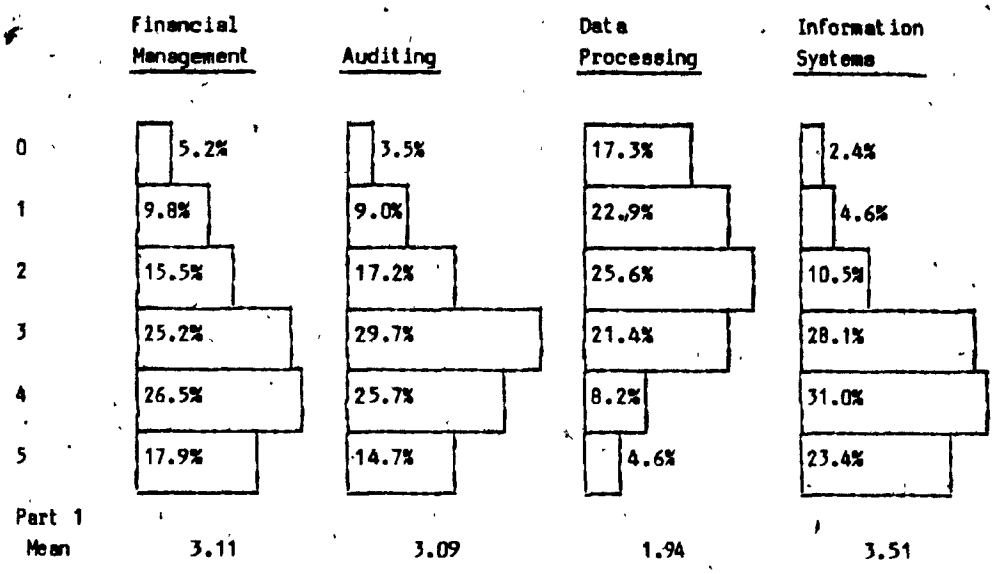


Exhibit 62 (continued)

Responses to Part One of the Questionnaire
by Course Area



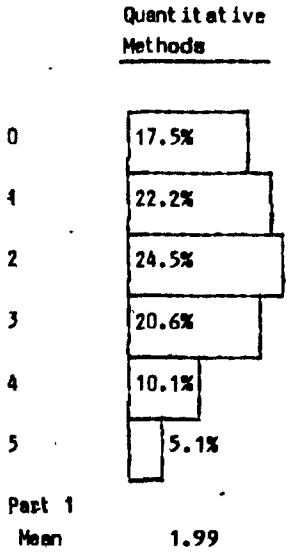


Exhibit 63

Course Coverage of the RIA Program - Listed by Relative Weights

Course Coverage	Relative Weights	
	Body of Knowledge[1]	Questionnaire Part Two[2]
Financial Accounting	22.2%	17.4%
Management Accounting	16.7%	20.3%
Sub-Total for Accounting	**38.9%**	**37.7%**
Organizational Behaviour	5.6%	8.6%
Economics	5.6%	2.7%
Report Writing	5.6%	5.9%
Taxation	5.6%	7.0%
Commercial Law	5.6%	0.9%
Financial Management	5.6%	13.5%
Auditing	5.6%	9.6%
Data Processing Equipment and Programming	5.6%	1.6%
Information Systems	5.6%	6.1%
Quantitative Methods	11.1%	6.6%
TOTALS	100.0%[3]	100.0%[3]

Notes:
1. These percentages, taken from SMA, Body of Knowledge, p. 26, have been adjusted to a base of 100% after deletion of Management Processes and Problems. See the section "Implications of Results" for discussion of the RIA Curriculum and this deletion.
2. Topic percentages from Exhibit 44 weighted as shown in Appendix O.
3. Differences of under 1% due to rounding.

implied by the percentage responses from part two of the questionnaire. The implications of these relationships are discussed in the following sub-sections and the limitations of this analysis is discussed later.

Accounting

The combined mean for the Financial Accounting topic grouping is 3.14 (Exhibit 62), moderately higher than the mean for all topics, 2.90. This is mainly due to the relatively high mean ratings on the topics Financial Statement Preparation (3.77) and Conventional Valuation Bases (3.31). Exhibit 63 shows that the course area has a relative weight of about 22% in the RIA BOK compared with 17.4% from the questionnaire weightings. Based on this comparison, the BOK relative weight for Financial Accounting appears slightly high.

The topics combined in the Management Accounting grouping show a composite mean rating of 3.29, in Exhibit 62, about 14% above the mean for all topics (2.90). This higher mean rating indicates, not surprisingly, the higher importance of these topics to the respondents. Based on a comparison of relative weights, Exhibit 63 (survey 20.3%, BOK 16.7%), this area appears to be underweighted in the BOK.

When the relative weights for Financial and Management Accounting in Exhibit 63 are combined they are 38.9% for the BOK and 37.7% for the questionnaire results. Thus, on an overall basis the questionnaire results indicate that the accountancy course area in total is adequately weighted in the BOK. However, according to the survey weights, relatively more weight should be allocated in the BOK to Management Accounting and less to Financial Accounting.

Organization Behaviour

This course area, in terms of the survey topics, has a mean of 2.96 which is close to the mean for all topics (2.90). For 65.9% of the respondents (Exhibit 62) this area was of above average or higher importance in their ratings. The relative weight for the area from part two of the questionnaire results (8.6%, Exhibit 63) is about 50% higher than the topic relative weight in the BOK (5.6%).

These results indicate that the BOK should be expanded for the Organization Behaviour area. However, because this area relates to human behaviour there may be a limit on what can be covered by course material versus what must be learned on the job. In any case, the survey results indicate additional course coverage should be considered.

Economics

This course area did not receive a high rating (mean 2.28) more than half of the respondents (54.6%, Exhibit 62) rated it at less than average or lower in importance. In Exhibit 63, the BOK relative weight of 5.6% is about twice the weight of 2.7% indicated by the survey data.

These results indicate that Economics should be given a lower relative weight in the RIA BOK. Economics is a discipline related to accounting and knowledge of the former may be advantageous to the study of accounting. Therefore, Economics may be needed in the BOK at a higher weight than implied by the survey results. However, the results do indicate that a lower proportional value for Economics should be considered.

Report Writing

Examination of Exhibit 62 shows that this course area has the highest mean rating in the Exhibit (3.65) and that 85.2% of the respondents rated it at above average or higher importance. The Report Writing area covers business communications and case analysis knowledge. Exhibit 63 shows that the relative weights for this area from the BOK (5.6%) and from the questionnaire results (5.9%) are about the same. The high importance and the relative weights indicate that this course should be retained in the BOK at

its current relative weight. However, because case analysis is covered in the course "Management Processes and Problems", coverage in the Report Writing course is not as essential as indicated. In addition, similar to the area Organizational Behaviour, this area may be one which contains significant elements which must be learned on the job. Nevertheless, the survey results imply that the present coverage is appropriate.

Taxation

This area received a rating of 3.06 (Exhibit 62), slightly above the mean rating for all topics. In Exhibit 63 the area has a relative weight of 5.6% in the BOK and 7.0% indicated from the questionnaire part two data. These results signify that the present coverage in the BOK is appropriate to the needs of RIAs, although coverage could be expanded slightly. However, because certain elements of the area Taxation are integrated into other course areas (e.g., Financial Accounting and Financial Management), the present coverage of Taxation may be adequate.

Commercial Law

This area received a lower than average mean rating (2.44, Exhibit 62). The topic is of above average or greater importance for less than half of the respondents.

Based on Exhibit 63, the relative weight in the BOK (5.6%) appears excessive when compared to the weight indicated from the questionnaire results (0.9%). Therefore, this course area should be investigated for deletion from the BOK. It seems probable that RIAs would rely on legal experts at work, thus decreasing their own need for legal knowledge. If some elements of this area are deemed necessary for the RIA curriculum, they could be added to other course material with which they logically integrate. For example, if some knowledge of contract law is considered necessary in the RIA BOK, then this coverage could be included in Financial Accounting and related to lessons concerning transaction recognition.

Financial Management

Ratings from part one of the questionnaire indicate that this area is of above average importance for almost 70% of respondents (Exhibit 62). The mean (3.11) is higher than the overall mean (2.90) and the relative weight indicated from the part two questionnaire data (13.5%, Exhibit 63) is more than double the relative weight for the area in the BOK. These results reveal that the area is very important to RIAs in performing their work and that the area should be given more weight in the BOK. Particular attention should be paid to the high ratings given the topics Working Capital

Management and Capital Budgeting and their degree of coverage in the BOK. This emphasis indicated for the Financial Management area may be related to the high interest rates experienced in recent years.

Auditing

The topics related to Auditing show a mean of 3.09 (Exhibit 62) which is moderately higher than the overall mean (2.90). For 70.1% of the respondents, the topic was rated at above average or higher importance. Comparison of the relative weights in Exhibit 63 shows 5.6% for the BOK and 9.6% indicated by the questionnaire part two data. These results, similar to those for Financial Management, show that the area Auditing is very important to RIAs in their work and that this area should be given more weight in the BOK. Respondents rated both Independent and Internal Auditing higher than average, although Internal Auditing is rated significantly higher than the former. RIAs, even if not working as internal auditors, probably need audit knowledge for their dealings with the external auditors and for supervising the internal audit function.

Data Processing Equipment and Programming

This course area was rated at below average or lower importance by almost 66% of respondents and it received the

lowest mean rating of all the course areas (Exhibit 62). Exhibit 63 lists a relative weight of 1.6% indicated by the questionnaire data compared with a relative weight of 5.6% from the BOK. This analysis points to the possibility that the course area receives too much emphasis in the BOK when compared with the importance of the area to RIAs in their work. In particular, the responses indicate that a knowledge of computer programming is not important to the majority of RIAs in their work. They probably rely on specialists to perform this service for them. Based on these findings, deletion of this course from the BOK should be considered.

Information Systems

This topic was rated highly by respondents; 82.5% indicated it was of above average importance or higher (Exhibit 62). The mean rating for the area, 3.51, is the second highest for all the course areas. In Exhibit 63 Information Systems is shown with a BOK relative weight of 5.6% and a relative weight of 6.1% indicated by the questionnaire results. These results, similar to those for the Report Writing area, demonstrate that the Information Systems area is important to practicing RIAs and that it should be retained in the BOK at its current relative weight.

Quantitative Methods

Respondents did not give the area Quantitative Methods high ratings, the mean value is 1.99, almost the lowest in Exhibit 62, and a majority (64.2%) indicated the area was of below average or lower importance. The relative weights in Exhibit 63 for this area are 11.1% for the BOK and 6.6% indicated by the questionnaire data. These results infer that this area receives too much emphasis in the BOK relative to the indicated needs of working RIAs. Perhaps, RIAs in their work rely on the quantitative methods skills of specialists and do not need in depth knowledge themselves. However, the topic Forecasting, partly allocated to Quantitative Methods, was very highly rated by respondents. These results do not clearly express the degree to which respondents needed a technical knowledge of forecasting versus an understanding of how to use forecasts. In any case, the area should be evaluated for a possible decreased weight in the BOK. If a need for technical knowledge of forecasting is to be retained in the BOK, this coverage could be added to the Management Accounting area where forecasting presently receives some coverage.

Summary and Limitations

Exhibit 64 summarizes the implications of the results for the RIA curriculum. These findings should be used as a

Exhibit 64

Summary of the Implications of the Results for the RIA Curriculum

Group 1

Course areas where no change is indicated in the RIA Body of Knowledge:

a) Accounting[1]
b) Report Writing
c) Taxation
d) Information Systems

Group 2

Course areas where increases are indicated in the RIA Body of Knowledge:

a) Organizational Behaviour
b) Financial Management
c) Auditing

Group 3

Course areas where decreases are indicated in the RIA Body of Knowledge:

a) Economics
b) Commercial Law[2]
c) Data Processing[2]
d) Quantitative Methods

Notes: 1. Although the relative weight for Accounting appears adequate, the survey results indicate that more weight should be allocated to Management Accounting and less to Financial Accounting.

2. These courses should be considered for deletion from the BOK.

basis for further investigation which would result in possible changes to the BOK. As shown in the Exhibit, four course areas appear adequately weighted in the BOK; three should have increased weights while the remaining four should have decreased weights. Two of this last group should be considered for possible deletion from the BOK. Any necessary trace elements of deleted courses could be added to other, related course areas.

Survey data, while they provide useful information, are subject to certain shortcomings. Particular limitations of this study are discussed in the section Limitations of Study in Chapter 1; these limitations should be kept in mind when interpreting the implications of the results. An additional limitation was introduced in this Chapter through the allocation of topics to course areas. Although great care was taken to make the most realistic allocations of topics, it is likely that other researchers' allocations could differ. However, these differences would likely be within relatively narrow limits and, thus, should not substantially alter the findings. The details of the topic allocations are given (Appendix O) for readers who may wish to test alternative distributions of topics.

Findings and Implications for Specialized RIA Education and for RIA Professional Development

In this section the survey results classified into formations of the industry, accounting sector and designation year respondent sub-groups are reviewed to show their implications for specialized education needs in the RIA program and for RIA professional development. The results in each classification are examined for patterns of similarities and of differences. Then, the combined findings and implications of the comparisons of the formations are summarized.

Industry Sub-Groups

The industry sub-group results are examined to assess the need for specialized RIA education and for professional development. The discussion in this section uses data from three previous exhibits and two appendices. The mean rating for each questionnaire topic by each industry sub-group is at Appendix H and the ranks of the means are at Appendix I. As illustrated in Exhibit 36 and discussed in Chapter 4, statistical tests show that the industry sub-groups differ in their ratings on 22 of the 28 topics, denoting different emphasis on the kinds of knowledge important to respondents

in their work.[5] Exhibits 37 and 39 show, respectively, the industry sub-groups overall mean ratings and their total variation in topic ranks. The distribution of these ratings and the mean topic ratings for the three industry formations (A, B and C) are displayed in Exhibit 65. These distributions show that, generally, the two business formations (A and B) are more in agreement on the ratings, and that they both give higher ratings than the non-profit formation (C). These findings conform to what would be expected because of the generally greater applicability of the topics to profit oriented organizations.[6]

Column 1 in Exhibit 66 shows the results of the topic testing on formation means classified into the appropriate curriculum areas. The inequality signs indicate that the statistical testing showed a significant difference between the ratings of the formations as well as the direction of the difference. The testing revealed no significant differences among the formations for three curriculum areas: Report Writing, Data Processing and Information Systems. These findings seem reasonable given the relatively more

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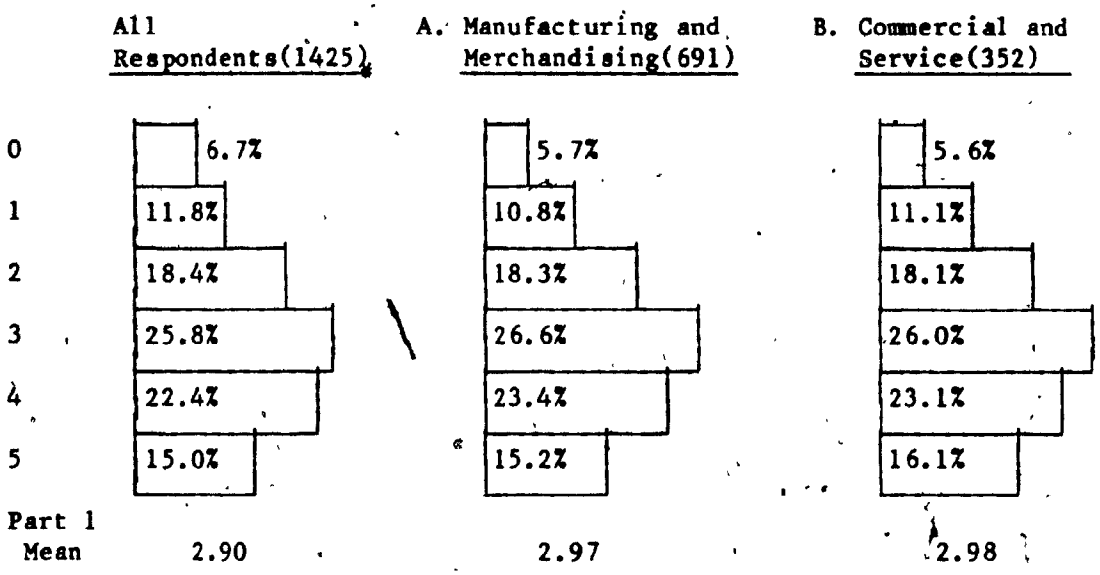
5/ The Kruskal-Wallis oneway analysis of variance was used with a significance level of.01 or less.

6/ See the discussion in Chapter 1 with reference to Robert N. Anthony and Regina E. Herzlinger, Management Control in Nonprofit Organizations, (Homewood, Ill.: Richard D. Irwin, Inc., 1975).

Exhibit 65

Responses to Part One of the Questionnaire by Sub-Group Formations



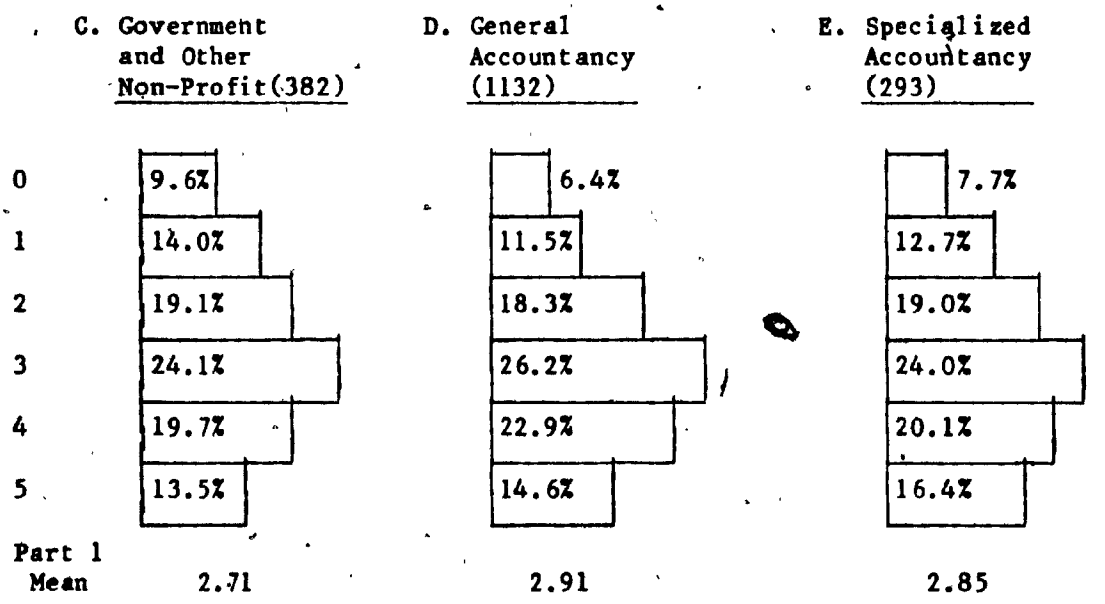


Exhibit 65 (continued)

Responses to Part One of the Questionnaire by Sub-Group Formations

	F. Early Curriculum Years(491)	G. Later Curriculum Years(934)
0	6.5%	6.8%
1	11.2%	12.1%
2	18.0%	18.7%
3	26.5%	25.4%
4	23.6%	21.7%
5	14.3%	15.4%
Part I Mean	2.93	2.90

Exhibit 66

Summary of Findings for the Sub-Group Formations
Questionnaire Part One Responses

RIA BODY OF KNOWLEDGE AREAS (RELATIVE IMPORTANCE %) and Questionnaire Topics (Sequence)	Industry (1)	Accounting Sector (2)	Curriculum Years (3)
1. FINANCIAL ACCOUNTING (20%)			
(9)Financial Statement Preparation	B > AC	DE	FG
(10)Conventional Valuation Bases	B > AC	E > D	FG
(11)Other Valuation Bases	AB > C	E > D	FG
(12)Major Regulatory Bodies	B > AC	E > D	FG
(15)International Reporting	A > B > C	DE	FG
(16)Social Measurement	ABC	DE	FG
(17)Financial Statement Analysis	B > C	DE	FG
(18)Working Capital	AB > C	DE	FG
2. MANAGEMENT ACCOUNTING (15%)			
(7)Behavioural Implications	ABC	D > E	FG
(20)Forecasting	A > B > C	D > E	FG
(21)Segment Accounting	A > BC	D > E	FG
(22)Cost Behaviour	A > B > C	D > E	FG
(23)Variance Analysis	AB > C	D > E	FG
3. ORGANIZATION BEHAVIOUR (5%)			
(4)Organization Theory	C > A	DE	FG
(8)Motivation & Perception	ABC	D > E	FG

Exhibit 66 (continued)

Summary of Findings for the Sub-Group Formations
Questionnaire Part One Responses

RIA BODY OF KNOWLEDGE AREAS (RELATIVE IMPORTANCE %) and Questionnaire Topics (Sequence)	Industry (1)	Accounting Sector (2)	Curriculum Years (3)
4. ECONOMICS (5%)			
(1)Microeconomic Theory	A > B > C	D > E	FG
(2)Macroeconomic Theory	AB > C	D > E	FG
(12)Major Regulatory Bodies	B > AC	E > D	FG
5. REPORT WRITING (5%)			
(6)Information Content	ABC	DE	FG
6. COMMERCIAL LAW (5%)			
(12)Major Regulatory Bodies	B > AC	E > D	FG
(14)Other Groups	ABC	DE	F > G
7. TAXATION (5%)			
(12)Major Regulatory Bodies	B > AC	E > D	FG
(13)Tax Regulations	AB > C	E > D	FG
8. FINANCIAL MANAGEMENT (5%)			
(3)Long-term Finance	B > A > C	D > E	FG
(17)Financial Statement Analysis	B > C	DE	FG
(18)Working Capital	AB > C	DE	FG
(19)Capital Budgeting	AB > C	D > E	FG
9. AUDITING (5%)			
(5)Ethical Considerations	ABC	DE	F > G
(24)Independent Auditing	BC > A	E > D	FG
(25)Internal Auditing	C > AB	E > D	FG
(26)Computer Systems	ABC	DE	FG

Exhibit 66 (continued)

Summary of Findings for the Sub-Group Formations
Questionnaire Part One Responses

RIA BODY OF KNOWLEDGE AREAS (RELATIVE IMPORTANCE %) and Questionnaire Topics (Sequence)	Industry (1)	Accounting Sector (2)	Curriculum Years (3)
10. DATA PROCESSING (5%)			
(26)Computer Systems	ABC	DE	FG
(27)Computer Programming	ABC	E > D	FG
11. INFORMATION SYSTEMS (5%)			
(26)Computer Systems	ABC	DE	FG
12. QUANTITATIVE METHODS (10%)			
(20)Forecasting	A > B > C	D > E	FG
(28)Quantitative Methods	ABC	D > E	FG

Notes: 1. Sub-group identification(N): A. Manufacturing and Merchandising (691); B. Commercial and Service(352); C. Government and other NonProfit(382); D. General Accountancy (1132); E. Specialized Accountancy(293); Early Curriculum Years(491); and G. Later Curriculum Years(934).

2. An inequality sign is used to indicate statistically significant differences between groups as well as the direction of these differences. When letters are shown adjacent, no statistically significant differences were found. For details, see Appendices H, J and P.

general purpose nature of these three areas in comparison with the other curriculum areas which tend to have more specific applications.

In the Financial Accounting curriculum area, the non-profit formation (C) ratings are generally below those of the business formations (A and B); these results are not surprising. However, formation B also shows significantly higher ratings over those for A on three topics (9, 10 and 12) which relate to financial statement preparation. There is no apparent reason for this emphasis on Financial Accounting found from the formation B responses other than the high rating given these topics by the Public Accounting sub-group in formation B. The only other difference between A and B is for the topic International Reporting (15), where the rating from A is greater than that from B. This difference may reflect the lower degree of foreign ownership in the finance, insurance and utilities organizations (formation B) resulting from greater government control over ownership in these sectors of the Canadian economy.

The non-profit formation ratings are significantly below those of the other two formations on all the Management Accounting related topics except for the topic Behavioural Implications (7), where no differences among the formations were found. Except for this topic (7) and the topic Variance Analysis (23), formation A rated the topics

comprising Management Accounting significantly higher than the other two formations did. These results conform to reasonable expectations, because two of these topics (21 and 23) are more applicable to the manufacturing and merchandising environments. The lower rating on the remaining topic, Forecasting (20), by formation C apparently results from the below the mean ratings given the topic by the Other Commerce and the Public Accounting sub-groups.

Contrary to the general direction of the significant differences, the topic Organization Theory (4) was given a higher rating by the non-profit formation (C) when compared to the rating by formation A. The other topic in the Organizational Behaviour area showed no differences among the formation ratings. The sub-group means for formation C on topic (4) are generally higher than the mean for all respondents except for the Federal Government sub-group rating (2.86) which is close to the mean (2.87). However, all of the non-profit sub-groups ranked the Organizational Behaviour area higher than the ranking by all respondents. This finding is consistent with the possibility that the decreased presence of tangible indicators of activity and output in non-profit organizations places greater emphasis on the behavioural aspects of work.[7]

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[7]/ Anthony and Herzlinger, Management Control in Nonprofit Organizations, pp. 40-42.

The Economics curriculum area topics were rated relatively low by all sub-groups, however, formation C is significantly lower than A and B on both Economics topics. All of the sub-groups in C rated these topics below the mean for all respondents. Microeconomic Theory (1) was rated lower by formation B sub-groups than by those in formation A. These lower ratings in formation B, particularly for the three sub-groups Other Commerce, Transportation and Utilities, probably indicate their more regulated operating environment which places lower emphasis on Microeconomic Theory (1) concepts, e.g. supply and demand, competition and pricing.

The topics related to the Commercial Law area received relatively lower ratings than most other topics by all respondents. On one topic, Major Regulatory Bodies (12), formation B shows a higher rating than the other formations. This topic (12) is common to the Financial Accounting area and its higher rating by formation B is attributable to the greater emphasis placed on this topic by the Public Accounting sub-group.

Formation C rated the Taxation area topics lower than the other two formations did. With only one exception, all the sub-groups in formation C indicated a low level of importance for the two Taxation topics. This exception was the Federal Government sub-group which rated Tax Regulations

(13) above the mean for all respondents. Thus, the lower ratings for formation C indicate the expected lower significance of the Taxation area to the non-profit sub-groups, except for those respondents in the Federal Government sub-group, a significant number of whom are involved in taxation work. The other formation difference between formations B and A on topic (12) has been discussed earlier in this section.

The topics in the Financial Management area are rated the highest by formation B and the lowest by formation C. Formation B is higher than A on the topic Long-Term Finance (3). The sub-groups Finance/Insurance and Public Accounting in formation B show the highest ratings on this topic (3). This finding is in line with expectations, since the nature of the work by respondents in these two sub-groups probably requires a higher than average knowledge of investment theory and the cost of alternative sources of capital.

The formations differ in the Auditing curriculum area on two of the four topics (24 and 25). Formation C is significantly higher than A on one topic (24) and higher than A and B on the other topic (25), contrary to the general trend of the differences in ratings. These higher ratings of Auditing topics by respondents in the non-profit group may result from the greater emphasis placed on auditing techniques in an environment where few, if any,

objective indicators of performance exist.[8] These findings are consistent with those discussed earlier in this section in reference to the higher ratings of the Organization Behavioural topics by formation C respondents.

The Quantitative Methods curriculum area encompasses two topics. The formations show no differences in their ratings of Quantitative Methods (28), while they all differ in their ratings on Forecasting (20), with A being the highest and C the lowest. This latter topic (20) is also related to the Management Accounting area and the reasons for the formation differences on topic (20) are discussed earlier.

The accounting sector sub-group results are discussed next followed by the designation year sub-group results. Then, the findings and implications of the analysis of the sub-group formations are related to the need for specialized education in the RIA curriculum.

Accounting Sector Sub-Groups

The discussion in this section uses data from three previous exhibits and two appendices. The mean rating for each questionnaire topic by each accounting sector sub-group is at Appendix J and the ranks of the means are at Appendix K. As illustrated in Exhibit 36 and discussed in Chapter 4, statistical tests show that the accounting sector sub-groups

8/ Ibid.

differ in their ratings on 25 of the 28 topics.[9] Exhibits 40 and 42 show, respectively, the accounting sector sub-groups overall mean ratings and their total variation in topic ranks. The distribution of these ratings and the mean topic ratings for the accounting sector formations (D and E) are displayed in Exhibit 65. These distributions show that the general accountancy formation (D) ratings are slightly higher than those for the specialized accountancy formation (E), even though the former (D) gave fewer ratings of 5 (extremely important) than were given by formation E. The mean ratings for the sub-groups in formation D range from 2.71 to 3.14 while those in formation E are from 2.67 to 3.20. Thus, as could be anticipated from the variety of the sub-groups in the formation and their greater variation in the topic ranks when compared to the ranking by all respondents, there is more divergence in the formation E ratings.

Column 2 in Exhibit 66 shows the results of the topic testing on formation means classified into the appropriate curriculum areas. The two formations show some differences on the topics in each area, except for the Report Writing and Information Systems areas.

9/ The Kruskal-Wallis oneway analysis of variance was used with a significance level of.01 or less.

The formations are different on three of the eight topics which relate to the Financial Accounting area. The specialized accountancy formation shows higher ratings on three topics (10, 11 and 12) which relate to external financial reporting requirements. These higher mean ratings on topics 10, 11 and 12 for formation E result from the higher ratings from the Public Accountant and Internal Auditor sub-groups and probably reflect their relatively higher involvement in Financial Accounting related work.

Formation D has significantly higher ratings over those of formation E on all five of the topics related to Management Accounting. These findings confirm the reasonable expectation that Management Accounting topics would be more relevant for respondents in the general accountancy formation (D) than for those in specialized accountancy (E). The work of respondents in formation D is likely more directly related to Management Accounting than is the work of those in formation E.

In the Organization Behaviour area, the formations differ in their ratings on one topic (Motivation and Perception) of the two topics in the area. The lower rating for formation E on this topic mainly results from the low ratings given by the Public Accountant and Internal Auditor sub-groups. Respondents in these sub-groups may be supervising fewer subordinates than is the case for other

respondents and, thus, have a lower need to deal first-hand with employee motivation and behaviour.

Formation D is higher than E for two of the topics related to the Economics curriculum area, Microeconomic Theory (1) and Macroeconomic Theory (2). The Internal Auditor sub-group in formation E rated the two Economics topics the lowest of any of the sub-groups. However, the Public Accountant sub-group, also in formation E, rated the economics topics above the average for all respondents. There is no apparent reason for these rating differences on micro- and macroeconomics. Perhaps the Public Accountant respondents, when working as management consultants, require knowledge related to Economics. The third topic in this area, Major Regulatory Bodies (12), is rated higher by formation E. This topic (12) is a common one with the Financial Accounting area and the reasons for this higher rating are discussed earlier in this section.

In the Commercial Law curriculum area, the formations are only different on the topic Major Regulatory Bodies (12) which was discussed earlier in connection with the Financial Accounting area.

For the Taxation curriculum area, formation E is significantly higher than formation D. The high ratings by the Public Accountant and the Internal Auditor sub-groups account for the higher rating by formation E. This finding

conforms to a reasonable expectation that the Taxation area topics are relatively more important for these two sub-groups (the Public Accountant and the Internal Auditor) in their work than the topics are for the other sub-groups.

Formation D shows higher ratings for two of the four topics relating to the Financial Management area; Long-Term Finance (3) and Capital Budgeting (19). The low ratings on both of these topics by respondents in the Internal Audit sub-group (formation E) accounts for most of this difference in ratings. While the Internal Audit sub-group gave these two topics the lowest ratings of all the sub-groups, the Public Accountant sub-group, also in formation E, gave the topics above average ratings. This difference between these two sub-groups, similar to the difference between them noted for the Economics area, has no apparent explanation except that the Public Accountant respondents when employed as consultants, may require knowledge of financial management in their work.

Formation E shows significantly higher ratings on two of the topics (24 and 25) in the Auditing area. The Public Accountant and Internal Auditor sub-groups in formation E gave these two topics the highest ratings of any of the sub-groups. This finding confirms an obvious expectation, given the high auditing component in the work of respondents in these two sub-groups.

In the Data Processing area, formation E gave a higher rating to the topic Computer Programming (27) than formation D gave the topic. This higher rating by formation E on Computer Programming (27) results from higher than mean ratings on the topic (27) by the Internal Auditor, Systems Analyst and Other sub-groups. Respondents in the Public Accountant sub-group, the remaining sub-group in formation E, gave the topic an average rating. The higher rating by the System Analyst respondents, the highest of any sub-group for Computer Programming (27), is not surprising given the nature of their work. The higher than average rating by the Internal Auditor sub-group is unexpected and indicates that computer programming knowledge is needed in the work of respondents in the sub-group. However, the rating of the topic (27) is below the over-all mean for this sub-group (2.17 versus 2.67) and, thus, the topic (27) is not as important as the majority of the topics are to the Internal Auditor sub-group.

In the final curriculum area, Quantitative Methods, the groups differ on one of the two topics in the area, Forecasting (20). This topic, common to both the Management Accounting and the Quantitative Methods areas, was highly rated by all respondents except for the Internal Audit sub-group. The reasons for the higher rating on this topic (20)

are discussed earlier in relation to the Management Accounting area.

Designation Year Sub-Groups

The discussion in this section uses data from three previous exhibits and two appendices. The mean rating for each questionnaire topic by each designation year sub-group is at Appendix L and the ranks of the means are at Appendix M. As illustrated in Exhibit 36 and discussed in Chapter 4, statistical tests show that the designation year sub-groups differ in their ratings on only 2 of the 28 topics.[10] These topics are Ethical Considerations (5) and Social Measurement (16). Exhibits 43 and 45 show, respectively, the designation year sub-groups overall mean ratings and their total variation in topic ranks. The distribution of these ratings and the mean topic ratings for the designation year formations (F and G) are displayed in Exhibit 65. These distributions show relatively little variation between the formation ratings, with the mean for the early curriculum years formation (F) slightly higher than the mean for the later curriculum years formation (G). Because there were relatively minor variations in the means of the individual designation year sub-groups, the formation distri-

10/ The Kruskal-Wallis oneway analysis of variance was used with a significance level of.01 or less.

butions and their means, as expected, also show little variation.

Column 3 in Exhibit 66 shows the results of the topic testing on the formation means classified into the appropriate curriculum areas. The two formations (F and G) are different on only two of the 28 topics. First, in the Commercial Law curriculum area, the early curriculum year formation (F) shows higher ratings on the topic Other Groups (14). This topic relates to knowledge of the activities and impact of regulatory agencies (other than those directly related to accounting and taxation, e.g., labour unions, consumer groups, etc.) on reporting requirements and business operations. Perhaps the nature of the work performed by RIAs who graduated earlier, formation F, requires them to be more aware of these groups than is the case for the work performed by formation G respondents. Reference to the sub-group means does not provide additional insight. The other formations (A to E, inclusive) showed no differences in their ratings on this topic (14).

The second difference between formations F and G is in the Auditing curriculum area. The topic Ethical Considerations (5) is rated higher by formation F. Review of the sub-group means shows that the mean for this topic (5) tends to decrease from the earlier to the later groups. This might reflect a change in values between the RIAs who

graduated early versus those who graduated more recently. The other formations (A to E, inclusive) showed no differences in their ratings on this topic (5).

Factor Comparisons for Sub-Group Formations

Appendix X presents a summary and approximate labeling of the main factors resulting from the factor analysis of the formation responses to part one of the questionnaire.[11] Exhibit 67 presents a comparison of the factors for all respondents (Exhibit 53) with those for each of the seven formations. The findings obtained from these results are discussed in this section.

In the case of each formation, all of the significant loadings on the factors were positively correlated. Thus, the respondents attitudes as measured by the loadings, show that these factors relate positively to their work.

Factor 1. The first factor explains between 42% and 49% of the variation for each formation. Factor 1 for formation A, financial accounting, does not deviate from the analysis of all respondents. For four other formations, Factor 1 is also very close to the all respondent results. Specifically, Factor 1 for formations B and D also includes Taxation, while for C and G, Taxation occurs along with

11/ The seven complete matrices are presented in Appendices Q to W, inclusive (formations A to G, respectively) and discussed in Chapter 4.

Exhibit 67

Summary of the Factor Analysis of Formation Responses

All Respondents		Formations						
Factor Numbers	Factor Names	Industry			Accounting Sector		Designation Years	
		A	B	C	D	E	F	G
1.	Financial Accounting	1	1	1	1	2, 4	2	1
2.	Management Accounting	2	3	2	2	1	1	2
3.	Human Behaviour	4	4	3	4	3	3	3
4.	Finance and Reporting Requirements	4	2	4	3	1	4	4
5.	Computers and Related Techniques	3	5	5	5	5	none	5

Notes:
1. The matrices for the above summary are given at Appendix N (all respondents) and at Appendices Q to W, inclusive (formations A to G, respectively).
2. The numbers shown in the seven columns for the formations, indicate for each formation the number of the closest related factor for all respondents.

Internal Auditing. Reference to the mean ratings (Appendices J, L and N) for the topics loading high on this factor shows that the Financial Accounting topics are generally important to respondents in these formations.

The remaining two formations, E and F, deviate from the analysis of all respondents on Factor 1. Financial Management and Management Accounting related topics are heavily loaded on Factor 1 for formation E, while in the case of formation F, the heavy loadings are on the Management Accounting topics.

Factor 2. The second factors for the responses of formations A, C, D and G approximate the second factor for all respondents, Management Accounting. Two formations, E and F have Financial Accounting as the second factor, while the seventh (B) has topics related to Human Behaviour in this position.

Factor 3. Four formations C, E, F and G have Human Behaviour topics as the third factor, in common with the results for all respondents. The other three formations (A, B and D) show factors which are related to the all respondent Factor 4, Finance and Reporting Requirements.

Factor 4. In the fourth factor position, formations A, C, F and G show factors related to the fourth factor for all respondents. The remaining three formations have factors which differ from the fourth all respondent factor, Finance

and Reporting Requirements, as well as from each other. Formation B has Management Accounting, and C shows Human Behaviour, while E has Financial Accounting along with Auditing as the fourth factor.

Factor 5. Formations A and F are the only two of the seven formations which do not show Computers and Related Techniques in the same position, fifth, as all respondents show. In the fifth factor position, A shows Human Behaviour topics while F shows Auditing, which does not relate to any of the five all respondent factors.

Summary and Conclusions. These results show that the factor profiles are different for each of the three industry formations, for each of the two accounting sector formations as well as for each of the two designation year formations. The factor patterns for formations C (non-profit organizations) and G (later curriculum years) are close to the pattern for all respondents, however, the remaining five formations do not show a common pattern.

The factor results also show that all formation responses fail to load heavily on at least one of the 28 topics. Exhibit 68 lists the seven formations in relation to the twelve topics which do not all show loadings at or above the cut-off level of $\pm$.40. These topics are not important for describing the variances in the formations where the low loadings occured. Formation C, non-profit

Exhibit 68

Summary of Low Factor Loadings By Topics and Formations

Questionnaire Topics (Sequence)	Formations						
	Industry			Accounting Sector		Designation Years	
	A	B	C	D	E	F	G
Microeconomic Theory(1)		L			L		
Macroeconomic Theory(2)		L			L		
Ethical Considerations(5)		L					
Tax Regulations(13)	L					L	
Other Groups(14)			L		L		
Social Measurement(16)		L			L		
Working Capital(18)						L	L
Independent Auditing(24)	L	L		L			
Internal Auditing(25)	L	L		L			L
Computer Systems(26)	L					L	
Computer Programming(27)	L					L	
Quantitative Methods(28)	L					L	

Notes: 1. The letter L signifies a low factor loading (less than $\pm$.40) on a topic by the formation response data.

2. The complete factor matrices are given at Appendices Q to W, inclusive, for formations A to G, respectively.

organizations, is loaded heavily on all but one topic (14). Six of the twelve topics (5, 13, 18, 24, 25 and 26) are generally rated above the mean for all topics and, although, they are not important in describing the variation in some of the formation data, these topics are important to the respondents. The remaining six topics in Exhibit 68 (1, 2, 14, 16, 27 and 28) show relatively low mean ratings in addition to being unimportant for describing the variation in some of the formations. Thus, respondents seem to agree that these topics are not important to them in their work.

Summary and Limitations

The findings show significant differences among the industry formations on 22 of the 28 topics. These differences are most significant in the Financial Accounting, Management Accounting, Organization Behaviour, Financial Management and Auditing areas. Less important differences are revealed for Economics, Commercial Law, Taxation and Quantitative Methods, while no differences occur for Report Writing, Data Processing and Information Systems.

The most notable differences in the industry formations are between the non-profit formation (C) and the two business formations (A and B). The non-profit group tends to show significantly lower ratings on most topics with two exceptions: Organization Behaviour and Auditing. Thus,

RIAs employed in non-profit organizations imply a requirement for a curriculum which would place relatively more emphasis on these two areas.[12] However, all but one of the topics (14) are significant in describing the variation in formation C, indicating important variations among the non-profit sub-groups themselves.

The other differences in the industry formations fail to reveal any significant patterns. There are some differences between the manufacturing and merchandising (A) and the commercial and service (B) formations, but these differences tend to be relatively few and they do not form any consistent pattern. The sub-groups within each formation also are not completely homogeneous in their factor patterns as evidenced by the results of the factor analysis.

The accounting sector formation results show significant differences for 25 of the 28 topics, but they confirm that there were no significant differences for Report Writing and Information Systems. There are some differences among the two formations, general accountancy (D) and specialized accountancy (E), but no distinctive patterns emerged from the analysis. Within the specialized accountancy formation (E), the Public Accountant and

12/ This emphasis on topics could be provided within the RIA curriculum (specialized accounting designations) or additional to the RIA curriculum (post-graduate specialization). Consideration of these choices is beyond the scope of this study.

Internal Auditor sub-group data often reveal different knowledge needs from the other sub-groups in E as well as, in some cases, from each other. The auditing topics (24 and 25), although rated as above average importance by the respondents in formation D, are not important in describing the variation in the formation while the remaining 26 topics were. For formation E, 24 topics are important in describing the variation. Thus, similar to the findings for the industry formations, the sub-groups within each formation are not completely homogeneous in their rating patterns.

The designation year formations (F and G) reveal few differences (2 out of the 28 topics) and relatively little variation in the respondent data. The formations show differences in two areas, Commercial Law and Auditing, but even these are relatively minor differences on only two topics. Of the 28 topics, 23 were significant for describing the differences among the sub-groups in formation F while 26 were important for G. Therefore, the sub-groups within each formation are not completely homogeneous in their rating patterns.

Chapter Summary

This Chapter presents the findings and implications of the results for the RIA curriculum, for specialization in

the RIA curriculum and for professional development. The results generally show that the survey topics are relevant to the practice of management accounting and are part of the RIA Body of Knowledge (BOK). Evaluation of the results shows that, for 11 course areas from the BOK, 4 areas seem adequately weighted, 3 should be increased in weight, while 4 should be decreased. Accounting is one area which seems adequately weighted in the BOK, but the weight of Management Accounting versus Financial Accounting should be increased. Report Writing, Taxation and Information Systems are courses which are shown to be relevant to RIAs in their work and also to be adequately weighted in the BOK.

Increases are indicated in the Organization Behaviour, Financial Management and Auditing areas. The survey results exhibit that these areas are important to RIA management accountants.

Decreases are indicated in Economics, Quantitative Methods, Commercial Law and Data Processing. Generally, respondents indicated knowledge in these areas was not important in their work. Two of these courses, Commercial Law and Data Processing should be considered for deletion from the BOK because of their low relevance to respondents in their work.

The findings show significant differences among the formations in the industry and accounting sector groupings,

but not in the case of the designation year formations. These differences are most significant in the Financial Accounting, Management Accounting, Organization Behaviour, Financial Management and Auditing areas. Less important differences are revealed for Economics, Commercial Law, Taxation and Quantitative Methods, while no differences occur for Report Writing and Information Systems. The sub-groups within each of the seven formations also are not completely homogeneous as evidenced by the patterns of their ratings.

The most notable discovery for the industry formations is between the non-profit formation (C) and the two business formations (A and B). The non-profit group tends to show significantly lower ratings on most topics with two exceptions: Organization Behaviour and Auditing. Thus, RIAs employed in non-profit organizations place relatively more emphasis on these two areas. The other differences in the industry formations fail to reveal any significant patterns. There are some differences between the manufacturing and merchandising (A) and the commercial and service (B) formations, but these differences tend to be relatively few and they do not reveal any consistent pattern.

There are some differences among the two accounting sector formations, general accountancy (D) and specialized accountancy (E), but no distinctive patterns result from the

analysis. Within the specialized accountancy formation (E), the Public Accountant and Internal Auditor sub-group data often reveal different knowledge needs from the other sub-groups in E as well as, in some cases, from each other.

Few differences exist between the responses for the two designation year formations (F and G). The formations do show relatively minor differences in two areas, Commercial Law and Auditing.

Chapter 6 contains the summary and conclusions of the study along with recommendations for further research.

Chapter 6

SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Summary

This study is intended to contribute towards a reduction in the gap between the practice of management accounting and the education of management accountants. The management accountant's body of knowledge has been increasing in recent years and this gap may also be expanding. The growth of para-accounting professional organizations and the increased interest in professional development programs for management accountants are responses to the expanding body of knowledge. There has been extensive discussion concerning the size of this gap but relatively little empirical research has been conducted to determine the educational needs of management accountants.

The evolution of management accounting professional organizations in Canada, the USA and the UK is traced to show the major significance of the Society of Management Accountants (SMA) to the education and practice of management accounting in Canada. However, in developing the SMA Body of Knowledge and the Registered Industrial Accountant

(RIA) curriculum the main, and at times exclusive, influences have been from academic sources. One important information source which has been underemployed in the RIA curriculum review process is representative input from practicing RIAs.

The purpose of this study is to determine and analyse the perceptions of practicing RIAs on the importance of selected management accounting topics in meeting their current work responsibilities. Specifically, the study is intended to provide information for assessment of the RIA curriculum, of the need for specialized education programmes, and of RIAs' professional development needs.

The literature review mainly covers the period since 1960. Although the review disclosed no research identical to this study, it did serve to locate a number of related studies for detailed examination. Twenty-six studies are discussed in detail in four groupings.

The first group consists of ten studies related to research concerning opinions about accounting information. These studies used methodologies which are pertinent for the current study and sampled populations of a nature related to this study. The studies in this first group indicate that opinion survey techniques can be applied with success in the study of accounting, although low response rates may occur.

The seven studies in the next group examine the relationships between the practice and the education of public accountants. The most extensive and influential of these is Roy and MacNeill's four-year study Horizons. Each of the studies in this second group illustrates the difficulty in relating the practice of accounting with the content of accounting education curricula in a completely tangible way. Therefore, their findings and recommendations tend to be stated in general terms so that readers are left to make their own inferences about the studies' results. The majority of these studies are limited because they gathered their empirical evidence from populations located in one state or in other restricted geographical areas.

The third group consists of four studies which attempt to increase knowledge about the relationship between specific accounting topics and their importance to accounting education and practice. While these studies may provide insight into specific aspects of the education of accountants, their findings can not be integrated to permit a comprehensive assessment of accounting curricula.

Studies in the final group from the literature attempt to provide information about management accounting education. These five studies have particular relevance to the current study and each is examined in detail. Special attention is given to the methods and limitations related to questionnaire design, sample selection and data analysis.

After consideration of the advantages and disadvantages of several, basically suitable research methodology choices, the descriptive survey is selected as the most appropriate method to accomplish the objectives of the study. The mail questionnaire is chosen specifically as the most relevant data collection method for the study.

Questionnaires from the five studies cited in the final group in the literature review, all of which are related to management accounting, are evaluated in detail for their basic suitability to the study. Two alternative questionnaires are found to best satisfy the selection criteria. Of these two, the questionnaire used by VanZante is selected because his list of topics is superior. This superiority in topics is due in some measure to the fact that the other questionnaire (by Deakin and Summers) was used by VanZante as one input into the development of his questionnaire. VanZante's questionnaire is further evaluated in detail for its validity and reliability for the current study. VanZante's rating scale from 0 (no importance) to 5 (extremely important) and his topics, with only minor changes, are retained.

A second section is added to the questionnaire requesting each respondent to select, from the 28 topics, those five topics which are the most important to him in his work, and then to allocate 100 points among these five topics to

indicate their relative importance. This section of the questionnaire is intended to provide additional data for assistance in the evaluation of the ratings from part one of the questionnaire. The questionnaire is translated into French using the method of "back translation" developped by another researcher. Translation into French is necessary to encourage response from Quebec RIAs.

A random sample of 2000 is selected from the target population (N = 8651) of all RIAs in Canada. This target population excluded RIAs located outside Canada, retired RIAs and those employed as educators (total exclusions were 795). These RIAs are excluded from the population because their responses would not likely be relevant in a survey of current management accounting practice in Canada. A questionnaire is mailed to each RIA in the sample. A unique serial number is placed at the top of each questionnaire to facilitate the addition of demographic data to the responses. After two mailings, 1425 usable questionnaires, part one, are received for a response rate of 71.3%. Fifty-two respondents (3.6%) failed to complete section two of the questionnaire and these respondents gave no indication why they left part two blank. Statistical testing also reveals no systematic reason for these omissions.

Demographic data from the sample are compared with data for the total RIA membership profile and very strong corre-

lations are reported. Thus, the sample appears to be representative of the RIA target population based on the respondents' industry classifications, accounting sectors and designation years.

The criteria for statistical test selection are presented and the use of parametric versus nonparametric methods is extensively covered. Parametric tests have been shown to be robust even when a number of assumptions related to them have been violated. The response data distributions are examined and the results indicate some risk that parametric methods might not be appropriate in the analysis of these data.

The Statistical Package for the Social Sciences (SPSS) is used to provide information on the data distributions and their parameters. SPSS was selected because it is particularily useful when analyzing questionnaire results and it includes all the subprogrammes required for data analysis of this study's results. The Mann-Whitney U test is selected as the most appropriate test for comparisons between two groups. Another nonparametric method, the Kruskal-Wallis oneway analysis of variance, is used for comparisons of three or more groups. Spearman's rho is used to compare the degree of association between various sets of rankings. Factor analysis is performed on the part one questionnaire data in total and for each of the industry, accounting

sector and designation year sub-groups. Principle factoring with iteration combined with VARIMAX rotation are the specific factor analysis options chosen.

The data are examined and tested extensively for possible nonresponse bias. The high response rate and the compatibility of the respondents' demographic profile with the profile for the RIA population strongly indicate a low probability of any nonresponse bias. Nevertheless, two null hypothesis are posed and tested using "early" versus "late" response data. Each hypothesis is evaluated by conducting 28 separate statistical tests, one test on the response data for each of the topics in part one of the questionnaire for both hypotheses. Separate tests are conducted on each questionnaire topic, rather than on the answers to all topics, because this individual analysis could be expected to yield more meaningful results than an analysis based on aggregated data. The results show that each null hypothesis is retained, i.e. that there is no indication of significant nonresponse bias in the data collected by the survey.

The data from part one of the questionnaire (the ratings), when totaled, form a close approximation of the normal distribution as one would expect from the large sample size. The mean rating for all topics is 2.90 which can be contrasted with an average rating of 2.50 for the six point scale. Percentage ratings by topic for each point on

the scale, means, medians, modes and standard deviations are presented. The differences between the means and medians for each topic are relatively minor and a comparison of the rankings by means and by medians shows a Spearman rho of .97, indicating a high degree of relationship between these rankings. The rhos calculated between the topic sequence on the questionnaire and the mean ranks (-.005) and the median ranks (-.076) show practically no relationship, indicating that the ratings were not influenced by the questionnaire topic sequence.

The rating data are analyzed to investigate response differences for respondent groupings by industry, by accounting sector and by designation year. The industry sub-groups are found to be different on 22 of the 28 topics while the accounting sector sub-groups are different on 25 topics. Few differences emerge for the designation year sub-groups; they are different for only two topics.

Computer Programming is the only topic on which all three respondent groupings agree; no group shows a significant difference although the industry and accounting sector groups are only slightly above the significance level cut-off. The industry and accounting sector groups show different results from each other for the following topics:

1. Behavioural Implications;
2. International Reporting;

3. Social Measurement and Reporting;
4. Computer Systems; and
5. Quantitative Methods.

Mean ratings are given for each sub-group in the three sets and the rank differences among the groups are discussed.

Statistical tests are performed to determine if the respondents to both parts of the questionnaire show differences in their part one ratings from the ratings given by those who responded to part one only. The results generally indicate high probabilities that the respondent groups do not differ in their ratings. Thus, the usefulness of the weightings given in part two of the questionnaire does not appear to be materially impaired because 3.6% of the respondents did not complete part two. Topic ranking comparisons between the part two data and the part one means and medians show rho values of .876 and .912. These indicate a very high degree of relationship between the pairs of rankings.

The data resulting from completion of part two of the questionnaire are described. Examination of the data distribution shows that most respondents' rankings (77.5%) range from 10% to 25% per topic. Thirteen topics received total point percentages above the average and this group accounts for 72.2% of the total points.

Factor analysis of the part one data reveals 7 factors with eigenvalues of one or more. Using the topic loadings on factors of $\pm$.40 or greater, the five factors are given these descriptive labels:

1. Financial Accounting;
2. Management Accounting;
3. Human Behaviour;
4. Finance and Reporting Requirements; and
5. Computers and Related Techniques.

Each of these five factors relates closely to the RIA curriculum area given by the factor description. Twenty-six topics are accounted for by the factors. Independent Auditing and Internal Auditing do not load above the cut-off point on any of the five factors. This pattern of factors for all respondents is used to compare the factor patterns for the industry, accounting sector and designation year sub-groups in order to determine similar patterns.

The respondent sub-groups are combined into formations, based on their sub-group characteristics, to facilitate analysis. The industry sub-groups are put into three formations (A. manufacturing and merchandising, B. commercial and service, C. government and other non-profit), the accounting sector sub-groups into two formations (D. general accountancy and E. specialized accountancy) and the designation year into two formations (F. early curriculum

years and G. later curriculum years). Response data for these formations are tested for statistically significant differences and analyzed for patterns of similarities and differences.

The RIA Body of Knowledge (BOK) is related to specific questionnaire topics and the data analysis results are used to evaluate the weight of each of the RIA curriculum course areas. No changes are indicated in the BOK weights for four course areas: Accounting, Report Writing, Taxation and Information Systems. However, the results do indicate that, within the Accounting course area, relatively more weight should be allocated to Managerial Accounting and less to Financial Accounting. The weights for Organization Behaviour, Financial Management and Auditing in the BOK should be considered for increases, while the remaining four course areas, Economics, Commercial Law, Data Processing and Quantitative Methods are proposed for decreased weights. Two of this last group of four areas, Commercial Law and Data Processing should be considered for deletion from the BOK. Certain, relatively minor, parts of these two courses may need to be retained in the BOK and they could be placed in other, related course areas.

The results of the analysis show few consistent patterns on which to make recommendations concerning specialized RIA education and professional development

needs. The most significant trend which emerges indicates a distinction in knowledge needs between RIAs employed in business (formations A and B) versus RIAs employed in government and non-profit organizations (formation C). RIAs in formation C show a relatively greater need for knowledge related to Organization Theory and Auditing than their counterparts in business organizations do. For the majority of the other curriculum areas, formation C shows lower importance ratings than A and B. The analysis within formations shows some variation among each set of sub-groups with the Financial and the Management Accounting areas explaining most of the variance in all the formations. Financial Accounting was the most important factor in explaining the variance for all respondent data as well as for the data from formations A, B, C, D and G, while Management Accounting was the second most important factor.

From the analysis and discussion of the results, the following comments are generally appropriate regarding the attitudes of the majority of respondents about the importance of the management accounting topics to their work:

1. RIA management accountants indicate the highest ratings for the Management Accounting topics, followed by the topics relating to Financial Accounting (second) and Financial Management (third);

2. RIA management accountants indicate a higher need for knowledge of Organization Behaviour, Financial Management and Auditing relative to the weights of these areas in the BOK;
3. RIA management accountants indicate a lower need for knowledge of Economics, Commercial Law, Data Processing and Quantitative Methods relative to the weights of these areas in the BOK;
4. RIA management accountants indicate a low importance to knowledge of Computer Programming, Quantitative Methods, Social Measurement and International Reporting to them in their work;
5. there are only relatively minor differences in the importance of the topics to RIAs who followed different curricula; and
6. the topics are of higher over-all importance to management accountants in business organizations except for two areas (Organization Behaviour and Auditing) which are more important to those working in non-profit organizations.

Conclusions

The results of the survey show that knowledge of the 28 topics related to management accounting are generally

important to RIA management accountants in their work. This finding adds credence to the belief that the RIA Body of Knowledge is generally appropriate for the education of management accountants in Canada. Based on the findings from the survey, recommendations for changes in the relative weights of the BOK are made. Thus, the study provides analysis and recommendations which can help reduce the gap between the education and practice of management accounting.

The study's results were inconclusive regarding the need for specialized RIA education and the applicability of a single BOK to all professional management accountants has neither been supported nor rejected. Additionally, the results do not yield definitive patterns or differences relating to RIA professional development needs.

Recommendations

In performing this study a number of areas into which additional research is needed were encountered. The opinions of RIAs employed by a broad range of organizational types and in various management positions were analyzed in this study. Although the study results represent the perceptions of importance on the various management accounting topics by a broad range of management accountants, the results do not depict what specifc functions management

accountants perform when they apply the knowledged represented by the various topics.

Indepth studies of exactly what management accountants do in the performance of their responsibilities would complement the information provided by the current study. Empirical research into the functions performed by management accountants would provide additional information to those concerned with the education of management accountants and to the Society of Management Accountants in order to assess the need for specialization within the Body of Knowledge. Research is also needed to determine where and when management accountants should take any necessary specialized education.

The importance of management accounting topics is subject to change as time passes. Studies similar to the present study could be conducted periodically to provide current information for management accounting education. In addition, comparison of successive studies could provide input for a description of the history and evolution of management accounting.

Research is also needed to determine what emphasis is required in management accounting education between the knowledge currently applicable and the knowledge applicable to future management accountant functions.

The RIA curriculum is influenced by the opinions of post-secondary educators and, in turn, the RIA curriculum influences the curricula of the majority of post-secondary institutions in Canada. The current study provides information from practioners to improve what would otherwise be a closed-loop. Research is needed to determine the importance of the RIA curriculum in influencing the curricula of Canadian educational institutions. This research could also examine the role of SMA as an educator of management accountants.

BIBLIOGRAPHY

Addams, Harvey Lon. "Opinions of Practicing Accountants: Written Communication Competencies Necessary in the Accounting Profession", Ed. D. dissertation, Brigham Young University, 1978.

Adelberg, Arthur Harris, "Narrative Disclosures Contained in Financial Report: An Empirical Evaluation of Their Understandability", Ph.D. dissertation, City University of New York, 1977.

American Accounting Association. Committee on the Accounting Curriculum for Junior and Community Colleges. "Report of the Committee on the Accounting Curriculum for Junior and Community Colleges." The Accounting Review, suppl. to vol. 45 (1970): 10-26.

_____. Committee on Advanced Accounting Instruction - 1963. "Report of Committee on Advanced Accounting Instruction."

_____. Committee on Behavioral Science Content of the Accounting Curriculum. "Report of the Committee on Behavioral Science Content of the Accounting Curriculum." The Accounting Review, suppl. to vol. 46 (1971): 246-85.

_____. Committee on Concepts of Accounting Applicable to the Public Sector, 1970-71. "Report of the Committee on Concepts of Accounting Applicable to the Public Sector, 1970-71." The Accounting Review, suppl. to vol. 47 (1972): 77-108.

_____. Committee on Cost Accounting Instruction - 1962. "Report of the Committee on Cost Accounting Instruction."

_____. Committee on Courses and Curricula - 1962. "Report of the AAA Committee on Courses and Curricula - 1962."

_____. Committee on Courses in Financial Accounting. "Report of the Committee on Courses in Financial Accounting." The Accounting Review, suppl. to vol. 47 (1972): 295-315.

_____. Committee on Courses in Managerial Accounting. "Report of the Committee on Courses in Managerial Accounting." The Accounting Review, suppl. to vol. 47 (1972): 1-13.

_____. Committee on Educational Planning - 1964. "Report of the Committee on Educational Planning - 1964."

_____. Committee on Information Systems. "Accounting and Information Systems." The Accounting Review, suppl. to vol. 46 (1971): 286-350.

_____. Committee on Information Systems. "Report of the Committee on Information Systems." The Accounting Review, suppl. to vol. 47 (1972): 187-213.

_____. Committee on Junior (Community) College Curriculum in Accounting. "Report of the Committee on Junior (Community) College Curriculum in Accounting." The Accounting Review, suppl. to vol. 47 (1972): 165-85.

_____. Committee on Managerial Accounting. "Committee Report - Committee on Managerial Accounting." The Accounting Review, suppl. to vol. 45 (1970): 1-8.

_____. Committee on Managerial Accounting. "Report of the 1969-70, 1970-71 Committee on Managerial Accounting." The Accounting Review, suppl. to vol. 47 (1972): 317-35.

_____. Committee on Not-For-Profit Organizations, 1973-72. "Report of the Committee on Not-For-Profit Organization, 1972-73." The Accounting Review, suppl. to vol. 49 (1974): 225-49.

_____. Committee on Professional Education in Accounting. "Report of Committee on Professional Education in Accounting." The Accounting Review, 34 (April 1959): 195-99.

_____. Committee on the Relationship of Behavioral Science and Accounting. "Report of the Committee on the Relationship of Behavioral Science and Accounting." The Accounting Review, suppl. to vol. 49 (1974): 127-39.

_____. Committee on the Study of the Ford and Carnegie Foundation Reports. "Report of the Committee on the Study of the Ford and Carnegie Foundation Reports." The Accounting Review, 36 (April 1961): 191-96.

_____. Committee to Examine the 1969 Report of the AICPA Committee on Education and Experience Requirements for CPAs. "Report of the Committee to Examine the 1969 Report of the AICPA Committee on Education and Experience Requirements for CPAs." The Accounting Review, suppl. to vol. 47 (1972): 237-57.

American Institute of Certified Public Accountants. The Report of the Committee on Educaiton and Experience Requirements for Certified Public Accountants. New York: AICPA, 1969.

Andersen, Anker V., "Defense of Accounting Education." The Accounting Review, 37 (October 1962): 768-69.

Anderson, David R.; Smidt, Leo A.; and McCosh, Andrew. Practical Controllership. 3rd ed. Homewood, Illinois: Richard D. Irwin, Inc., 1973.

Anton, Hector R.; and Firmin, Peter A.. Contemporary Issues in Cost Accounting: A Discipline in Transition, 2nd ed. Nashville, Tennessee: Thomas Nelson and Sons, Inc., 1972.

Asher, William J. Educational Research and Evaluation Methods. Boston: Little, Brown and Company, 1976.

Asebrook, R.J. "Reporting on Forecast: A Survey of Attitudes." Journal of Accountancy 136 (August 1973): 38-48.

Aslanian, Paul J.; and Duff, John T. "Why Accounting Teachers are So Academic." Journal of Accountancy 136 (October 1973): 47-53.

Association of Certified and Corporate Accountants, Management Accounting Committee. Management Accounting: A Concise Appraisal. London: Association of Certified and Corporate Accountants, 1954.

Babbie, Earl R. Survey Research Methods. Belmont, California: Wadsworth Publishing, Inc., 1973.

Ball, J.T. "Changing Concepts in the Education and Training of Accountants." The Journal of Accountancy 124 (July 1967): 83-85.

Barden, H.G. "The Trouble with Accounting Research." Journal of Accountancy 139 (January 1975): 58-65.

Barker, Robert Lewis. "Certification of Management Accountants -- A Study of the Evolution, the Underlying Body of Knowledge and the Impact on Accounting Practice and Education." Ph.D. dissertation, University of Alabama, 1974.

Bastable, C.W. "Why Can't Johnny Account?" Journal of Accountancy 143 (January 1977): 63-69.

Behling, Robert. "Attitudes of American Institute of Banking Membership Toward Inservice Training." Ph.D. dissertation, University of Northern Colorado, 1974.

Bentz, William F. "Learning Transfer in Professional Education and Training for Accounting." The Accounting Review 50 (April 1975): 370-79.

Beyer Lecture Series 1977. Management Accounting: State of the Art. Madison, Wisconsin: University of Wisconsin - Madison, 1977.

Bierman, Harold Jr. Topics in Cost Accounting and Decisions. New York: McGraw-Hill, Inc., 1963.

Blalock, Hubert M., Jr. Social Statistics. 2nd ed. New York: McGraw-Hill, Inc., 1972.

_____; and Blalock, Anne B. Methodology in Social Research. New York: McGraw-Hill, Inc., 1968.

Best, John W. Research in Education. 3rd ed. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.

Blum J.D.; and Chadwick, L.W. "Accounting Educators' Views on Financial Forecasting." CPA Journal 44 (March 1974): 15-16.

Borg, Walter R. Educational Research an Introduction. New York: David McKay Company, Inc., 1963.

Bose, Mihir K. "Will the Genuine Accountant Please Stand Up." Accountancy 87 (September 1976): 68-69.

Boyd, Vergil and Taylor, Dale. "The Magic Words Managerial Accounting." The Accounting Review 36 (January 1961): 105-11.

Bradshaw, William. "A Firm Approach to Specialization." CA Magazine 108 (March 1976): 24-32.

Brief, Richard P. "The Accountant's Responsibility in Historical Perspective." The Accounting Review 50 (April 1975): 285-97.

Brown, Howard J. "Professional Ethics in Required Auditing Courses in the Education of Public Accountants." Ph. D. dissertation, New York University, 1975.

Buchan, Peter Bruce. "An Inquiry into the Risk Taking Attitudes of Managers." Ph.D. dissertation, University of Michigan, 1969.

Buckley, John W. "A Perspective on Professional Accounting Education." The Journal of Accountancy Vol. 130 (August 1970): 41-47.

_____. "The Myth of the Compleat Accountant." Federal Accountant 21 (September 1972): 40-52.

_____; and Buckley, Marlene H. The Accounting Profession. Los Angeles: Melville Publishing Co., 1974.

_____; Buckley, Marlene H.; and Chiang, Hung-Fu. Research Methodology and Business Decisions. Hamilton, Ontario: Society of Industrial Accountants of Canada, 1976.

Burns, D.C.; and Haga, W.J. "Much Ado about Professionalism: A Second Look at Accounting." The Accounting Review 52 (July 1977): 705-15.

Burton, John C. "An Educator Views the Public Accounting Profession." The Journal of Accountancy 132 (September 1971): 48.

Buzby, Stephen L. "The Effects of Time on the Relative Importance of Selected Items of Information and Their Implied Index of Disclosure." Paper presented at the 1977 annual meeting of the American Accounting Association, Portland, Oregon, August 22-24, 1977.

Carey, John L. The Rise of the Accounting Profession: From Technician to Professional, 1896-1936. New York: American Institute of Certified Public Accountants, 1969.

_____. The Rise of the Accounting Profession: To Responsibility and Authority, 1937-1969. New York: American Institute of Certified Public Accountants, 1970.

Carney, Keith Thomas. "The Importance of Selected Cost Accounting Topics to Careers in Public Accounting." Ph.D. dissertation, University of Northern Colorado, 1976.

Cattell, Raymond B. The Scientific Use of Factor Analysis in Behavioral and Life Sciences. New York: Plenum Press, 1978.

Chandra, Gyan. "A Study of the Consensus on Disclosure Among Public Accountants and Security Analysts." The Accounting Review 49 (October 1974): 733-42.

Chen, Kung H.; and Lambert, S.J. "A Study of Consensus on Disclosure Among Public Accountants and Security Analysts: An Alternative Interpretation." The Accounting Review 52 (April 1977): 508-15

Child, Dennis. The Essentials of Factor Analysis. London: Holt, Rinehart and Winston, 1973.

Cobb, E. Kennedy. "Current Status of Managerial Accounting as a Course of Study." The Accounting Review 35 (January 1960): 125-29

Cook, Walter W.; Hovet, Kenneth O.; and Kearney, Nolan C. "Curriculum Research." Review of Educational Research 26 (1956): 224-40.

Crossman, Paul T. "The Nature of Management Accounting." The Accounting Review 33 (April 1958): 222-27.

Croxall, John R. "The Professional Certification Programs." The Federal Accountant 23 (June 1974): 5-6.

Culbertson, Jack A., ed.; and Hencley, Stephen P. Educational Research: New Perspectives. Danville, Illinois: The Interstate Printers & Publishers, Inc., 1963.

Davidson, Sidney. "The CPA and the Educator." The Journal of Accountancy 128 (September 1969): 93-94.

Deakin, Edward B. III; Granof, Michael H.; and Granof, Charles H. "Educational Objectives for an Accounting Program." The Accounting Review 49 (July 1975): 584-89.

_____; and Summers, E.L. "A Survey of Curriculum Topics Relevant to the Practice of Management Accounting." The Accounting Review 50 (April 1975): 380-83.

Demarest, Rosemary R. Accounting: A Guide to Information Sources. Detroit, Michigan: Gale Research Company, 1970.

Dembowski, S. "The Management Accountant." Management Accounting 54 (April 1973): 9-12.

Dermer, Jerry D. "Cognitive Characteristics and the Perceived Importance of Information." The Accounting Review 48 (July, 1973): 511-19.

Diamond, S. "Some Early Uses of the Questionnaire." Public Opinion Quarterly 27 (1963): 528-42.

Dirsmith, Mark William. "Attitudes of Selected Decision Makers Towards Information Provided by the Financial Accounting System." Ph.D. dissertation, Northwestern University, 1975.

Dixon, Hollis Austin. "A Study of the Certified Public Accounting Profession in Arkansas." Ph.D. dissertation, University of Arkansas, 1964.

Doherty, R.E. The Development of Professional Education. Pittsburg, Pa.: Carnegie Press, 1950.

Dopuch, Nicolas; and Resvine, Lawrence, eds. Accounting Research 1960-1970: A Critical Evaluation. Urbana, Illinois: Center for International Education and Research in Accounting, 1973.

Edwards, James Don; et al., eds. Accounting Education: Problems and Prospects. Sarasota, Fla.: American Accounting Association, 1974.

Ellis, Lowdell O.; and Miller, Herbert E. "Accounting Education Today." Woman CPA, 37 (July 1975): 12-14, 30.

Emory, C. William. Business Research Methods. Homewood, Illinois: Richard D. Irwin, Inc., 1976.

Estes, Ralph. "Achieving Practical Relevance in Accounting Education: A Survey of Public Accountants on the Present and Future Importance of Curriculum Areas." Woman CPA 40 (October 1978): 7-12.

Ferrara, William L.; et al., eds. Researching the Accounting Curriculum: Strategies for Change. Sarasota, Fla.: American Accounting Association, 1975.

Fiebelkorn, George Albert, Jr. "The Role of the Certified Public Accountant in the Communication Process as Perceived by Sophisticated Users, With an Empirical Analysis of Factors Affecting Management Credibility and Certified Public Accountant Credibility." Ph.D. dissertation, Georgia State University, 1977.

Firmin, Peter A. "Educating Tomorrow's Accountant - Today." The Accounting Review 32 (October 1957): 569-75.

Figler, Homer R. "What Should the Management Accountant Know?" Management Accounting 59 (June 1978): 27-29.

Fishbein, Martin, ed. Readings in Attitude Theory and Measurement. New York: John Wiley and sons, Inc., 1967.

_____; and Ayzin, Icek. Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research. Reading, Mass.: Addison-Wesley Publishing Co., 1975.

Fisher, J. "The Dilemma of Accountancy Education." Management Accounting 56 (November 1978): 448-50.

Fox, J.G. "Education for Governmental Accountants." Government Accountants Journal 26 (Fall 1977): 44-52.

Francia, Arthur J.; and Strawser, Robert H. "Perceptions of Financial Reporting Practices by CPAs." Journal of Accountancy 132 (December 1971): 84-86.

_____; and _____. "Attitudes of Management Accountants on the State of the Art." Management Accounting 53 (May 1972): 21-24.

Froemming, Roger C. "Continuing Professional Education." Wisconsin CPA 104 (October 1974): 4, 18.

Gallagher, Charles, Augustine. "Measurement and Analysis of Managers' Perceptions of the Value of Selected Management Information." D.B.A. dissertation, Florida State University, 1971.

Gephart, William Jay. "Development of an Instrument for Evaluating Reports of Educational Research." Ph.D. dissertation, Ohio State University, 1965.

Glaser, Barney G.; and Strauss, Anselm L. The Discovery of Grounded Theory. Chicago: Aldine Publishing Company, 1967.

Goble, Ross Lawrence; and Floyd, Herbert Fulto. "Recycling Accountants - Education for the Eighties." National Public Accountant 21 (September 1976): 10-18.

Good, Carter V. Essentials of Educational Research Methodology and Design. New York: Meredith Publishing Co., 1966.

Goldstein, Philip. "Deficiencies of Accounting Education." Journal of Accountancy 140 (November 1975): 30-32.

Greenberg, Barnett A.; Goldstucker, Jac L.; and Bellenger, Danny N. "What Techniques are Used by Marketing Researchers in Business?" Journal of Marketing 41 (April 1977): 62-68.

Grinnell, D. Jacque; and Kochanek, Richard F. "Capabilities and Role of the Contemporary Management Accountant." Cost and Management 50 (July/August 1976): 40-43.

Harman, Harry H. Modern Factor Analysis. 3rd ed. Chicago: The University of Chicago Press, 1976.

Harper, James Carhart. "The Relationship Between Demographic Attributes and Opinions of Certified Public Accountants on Education and Experience Requirements Controversies." Ph.D. dissertation, University of Utah, 1975.

Hart, Donald J. "An Outsider Looks at the Accounting Curriculum." Journal of Accountancy 127 (March 1969): 87-89.

Hartgraves, Alonzo Lee, Jr. "A Study of the Role and Responsibilities of Certified Public Accountants in the Preparation of Unaudited Financial Statements." Ph.D. dissertation, Georgia State University, 1975.

Hays, W.L. Statistics for Psychologists. New York: Holt, Rinehart and Winston, 1963.

Heise, David R., ed. Sociological Methodology 1975. San Francisco: Jossey-Bass, Inc., 1974.

_____. Sociological Methodology 1976. San Francisco: Jossey-Bass Inc., 1975.

Helmstadter, G.C. Research Concepts in Human Behaviour Education, Psychology, Sociology. New York: Meridith Corporation, 1970.

Hicks, James Oliver, Jr. "A Study of Differential Subsystem Perceptions of Innovations & Future Change in the Accounting Profession." Ph.D. dissertation, Georgia State University, 1976.

Horn, Frederick E. "Academic Preparation of the Accountant of the Future." Journal of Accountancy 139 (May 1975): 64-68.

Horngren, Charles T. Comptabilité Analytique de Gestion, trans. Anacleto J. Fernandez, Montreal: Les Éditions HRW Ltée, 1977.

Institute of Cost and Management Accountants. Terminology of Management and Financial Accountancy. 3rd ed. London: Institute of Cost and Management Accountants, 1974.

Jacobson, Lyle E. "Management Accounting: Content and Approach.". The Accounting Review 35 (January 1960): 64-69.

Jacoby, Louis Conrad. "A Model of Recommended Education for the Future Growth of Certified Public Accountants." D.B.A. dissertation, Michigan State University, 1972.

Johnson, E.A. "The Controllership Function." Management Accounting 53 (March 1972): 45-48.

Johnson, Sidney Bruce. "An Investigation of the Recommendations Made by the Committee on Education and Experience Requirements of the American Institute of Certified Public Accountants." D.B.A. dissertation, Mississippi State University, 1978.

Johnston, Donald John. "Towards Professionalism in Management Accounting." Cost and Management 49 (November/December 1975): 6-11.

Kaplan, Abraham. The Conduct of Inquiry: Methodology for Behavioral Science. San Francisco: Chandler Publishing Co., 1964.

Kapnick, H. "The Emerging Role of the Academic Accountant." Arthur Andersen Chronicle 35 (April 1975): 4-11.

Keister, Orville R. "The Case for a Certifying Examination in Governmental Accounting." Federal Accountant 20 (December 1971): 107-11.

Keller, Donald Eugene. "A Critical Evaluation of Some Aspects of Educating Accountants for the Public Accounting Profession in California." D.B.A. dissertation, University of Southern California, 1969.

Kempthorne, Oscar. Probability, Statistics and Data Analysis. Ames, Iowa: The Iowa State University Press, 1971.

Kensky, Harry Charles. "A Study of the Education and Training of Accountants in Electronic Data Processing in the Philadelphia Area." Ed.D. dissertation, Temple University, 1970.

Kerlinger, Fred N. Foundations of Behavioral Research. 2nd ed. New York: Holt, Rinehart and Winston, Inc., 1973.

Kiesey, D.T.; and Pavlock, E.J. "Trends in Management Education for CPAs." Journal of Accountancy 139 (1975): 48-53.

Kilgore, Ronald Warren. "Mississippi Certified Public Accountants, Their Work and Attitudes: A Profile." Ph.D. dissertation, University of Mississippi, 1974.

Kilvington, K.W. "The Management Accountant: A British Study." Management Accounting 56 (May 1975): 32-38.

Kircher, Paul. "Theory and Research in Management Accounting." The Accounting Review 36 (January 1961): 43-49.

Kish, Leslie. Survey Sampling. New York: John Wiley and Sons, Inc., 1965.

Kistler, Linda; and Guy, Joseph F. "An Evaluation of Professional Certification Programs in Accounting." Journal of Accountancy 140 (September 1975): 104-08.

Knight, Royal Edwin. "A Rating of Topics With Implications for Financial and Managerial Accounting Curricula." Ed.D. dissertation, University of Northern Colorado, 1976.

Kramer, Joshua. "Government Accounting Has Matured." Government Accountants Journal 25 (Fall 1977): 61-64.

Krogstad, J.L., and Harris. J.K. "The CMA Examination: A Content Analysis." Management Accounting 56 (October 1974): 21-23.

Kuhn, Thomas S. The Structure of Scientific Revolutions. 2nd ed. Chicago: The University of Chicago Press, 1962.

Lake, Robert Charles. "Importance of Selected Academic Subjects as Perceived by Practicing CPAs in the Southern States Region of the National Association of State Boards of Accountancy." D.B.A. dissertation, Louisiana Technical University, 1977.

Lancaster, H.O. The Chi-Squared Distribution. New York: John Wiley and Sons, Inc. 1969.

Larson, K.; and Tomassini, L. "The Emerging Professional Orientation in Accounting Education." Accounting Forum 45 (December 1976): 1-9.

Lawler, John L. "The Specter of Specialization." California CPA Quarterly 36 (March 1969): 9-13.

Lickiss, M.G. "Practitioners, Look Ahead." Accountancy. 86 (February 1976): 49-50.

Lindquist, E.F. Design and Analysis of Experiments in Psychology and Education. Boston: Houghton Mifflin Co., 1953.

Listro, John Peter. "Accounting Principles of Nonprofit Organizations of Their Status in College Accounting Programs." Ph.D. dissertation, University of Connecticut, 1976.

Livingstone, John Leslie. Managerial Accounting: The Behavioral Foundations. Columbus, Ohio: Grid Publishing, Inc., 1975.

Ljungdahl, Philip Warren. "An Inquiry into the Managerial Applications of Accounting to Ranching Enterprises." Ph.D. dissertation, University of Texas at Austin, 1966.

Loeb, S.E.; and Gannon, M.J. "Educational Factors, Professional Activity and Job Tenure Among Public Accountants." Journal of Accountancy 141 (1976): 88-89.

Longhill, David Desmond. "An Inquiry into the Certificate in Data Processing (CDP) Program." D.B.A. dissertation, George Washington University, 1976.

McCormak, Vincent Francis. "Opinion Leadership and Network Centrality With Respect to Teaching Innovations Within Accounting Higher Education." Ph.D. dissertation, Michigan State University, 1977.

McCullers, Levis D.; and Van Daniker, Relmond P. "Professionalism in Accounting." CPA Journal 44 (August 1974): 39-42.

MacDonald, Graeme. "An Academic Perspective of Accounting." Accountancy 86 (October 1975): 60-61.

McDonough, John J.; and Mock, Theodore J. "Accounting Education in a Changing World." California CPA Quarterly 38 (September 1970): 9-10, 12, 34.

Marino, Francis A. "Accounting Education Often Ignores Nonprofit Area." Hospital Financial Management 31 (February 1977): 16-20.

Markell, W. "Accounting Education Dilemma." Journal of Accountancy 133 (1972): 26.

Mather, John Howard. "Measurement of Attitudes in Banking By Means of The Semantic Differential." Ph.D. dissertation, University of Arizona, 1975.

Mautz, R.K. "Where Do We Go From Here?" The Accounting Review 49 (April 1974): 353-60.

Melcher, Trint U. "An Empirical Investigation into the Effectiveness of Accounting Principles Board Opinion No. 20." D.B.A. dissertation, Arizona State University, 1977.

Meyer, Harvey G. "Some Aspects of Accounting Education." The Accounting Review 36 (April 1961): 209-12.

Meyer, Philip E. "Ethical Standards for the Internal Accountant." National Public-Accountant 17 (February 1972): 27-28.

Miller, Delbert C. Handbook of Research Design and Social Measurement. 3rd ed. New York: David McKay Company, Inc., 1977.

Miller, H. "Academic Preparation for a Professional Accounting Career." Accounting Forum 46 (December 1976): 29-39.

Moonitz, Maurice. "The Beamer Report - A Golden Opportunity for Accounting Education." Journal of Accountancy 136 (August 1973): 64-69.

Mouly, George L. The Science of Educational Research, 2nd ed. New York: Litton Educational Publishing, Inc., 1970).

Moyer, C.A. "Some Common Misconceptions Relating to Accounting Education." The Accounting Review 32 (October 1957): 531-35.

Nelson, A.T. "Accounting in a Decade-Trade or Profession." CPA Journal 48 (June 1978): 11-16.

Neumann, Frederick L. "Narrowing the Breach." CPA Journal 48 (October 1978): 40-44.

Nie, Norman H.; et al. Statistical Package for the Social Sciences. 2nd ed. New York: McGraw-Hill, Inc., 1975.

Nunnally, Jum C. Psychometric Theory. New York: McGraw-Hill, Inc., 1967.

_____. Introduction to Psychological Measurement. New York: McGraw-Hill, Inc., 1970.

Olson W.E. "Accounting Profession in the 1980s." Journal of Accountancy 148 (1979): 54.

Oppenheim, A.N. Questionnaire Design and Attitude Measurement. New York: Basic Books, Inc., 1968.

Overall, John E.; and Klett, C. James. Applied Multivariate Analysis. New York: McGraw-Hill, Inc., 1972.

Overbey, John Thomas. "Undergraduate Preparation in Information Systems for Accountants." Ph.D. dissertation, The University of Texas at Austin, 1976.

Paperman, Jacob B. "The Accountant's Perception of the Usefulness of Human Resource Accounting Information in Published Financial Statements." Ph.D. dissertation, University of Cincinnati, 1976.

Parker, R.H. Management Accounting: An Historical Perspective. London: Macmillan and Co. Ltd., 1969.

Partillo, James W. "Unity in the Accounting Profession." Journal of Accountancy 138 (July 1974): 50-58.

Parten, Mildred. Surveys, Polls, and Samples: Practical Procedures. New York: Cooper Square Publishers, 1966.

Paton, William A. "Some Reflections on Education and Professoring." The Accounting Review 42 (January 1967): 7-23.

_____. "Accounting's Educational Eclipse." Journal of Accountancy 132 (December 1971): 35-37.

Patten, Ronald J. "The Trend in Accounting Education." Managerial Planning 20 (November/December 1972): 34-37.

Pearcy, J. "The Widening Role of the Accountant in Industry." Accountancy 87 (August 1976): 72-74.

Phillips, Bernard S. Social Research: Strategy and Tactics. 3rd ed. New York: Macmillan Publishing Co. Inc., 1976.

Piper, John A. "Are We Still Too Technique Oriented?" Management Accounting 54 (November 1976): 384-85.

Popper, Karl R. The Logic of Scientific Discovery. London: Hutchison and Co., 1959.

Posey, J. Marion. "Academic Institutions and the Education Needs of the Accounting Profession." Woman CPA 37 (July 1975): 3-6.

Prater, George Ival. "Management Accounting Concepts Related to Decision Making About Business Inventories." Ph.D. dissertation, Stanford University, 1962.

Rappaport, Alfred. "The Future is Not What It Used to Be - Some Implications for Management Accounting." Journal of Contemporary Business 4 (Autumn 1975): 1-14.

Ribchester, Robert. "So You Asked Us About PD." CA Magazine, 106 (October 1974): 51-57.

Ricchiute, David N.; and Campbell, David R. "A Need to Bring Educators and Practitioners Together." CPA Journal 49 (March 1979): 35-39.

Rosen, L.S. "Current Practioner - Academic Relations," Canadian Chartered Accountant 107 (September 1975): 76-79.

_____. "The Intellectualization of University Accounting Education." CA Magazine 108 (March 1976): 72-75.

_____. "Accounting Education: A Grim Report Card." CA Magazine 111 (June 1978): 30-34.

Roy, Robert H.; and MacNeill, James H. Horizons for a Profession: The Common Body of Knowledge for Certified Public Accountants. New York: The American Institute of Certified Public Accountants, 1967.

Sabbagh, Hashem Mohammed Ali. "The Utilization of Selected Managerial Accounting Concepts and Techniques in Branch Bank Management." Ph.D. dissertation, University of Arizona, 1971.

Said, Kamal E. "Division Between Educators and Practitioners About Accounting Education - Is It In the Professional or Academic Realm?" National Public Accountant 21 (September 1976): 20-24.

Scott, Christopher. "Research on Mail Surveys." Journal of the Royal Statistical Society 124, Series A, Part 2 (1961): 143-91.

Senatra, Phillip Thomas. "Auditors' Perceptions of Role Conflict and Role Ambiguity in a Public Accounting Firm: An Empirical Study." Ph.D. dissertation, University of Iowa, 1976.

Seed, Allen H. III. "The Current Financial Certification Programs - What They Are and What They Entail." Practical Accountant 9 (March-April 1976): 67-69.

Selltiz, Claire; Wrightsman, Lawrence S.; and Cook, Stuart W. Research Methods in Social Relations. 3rd ed. New York: Holt, Rinehart and Winston, Inc., 1976.

Shadden, Donald H. ed., Accounting Education: New Horizons for the Profession. University of Michigan Business Paper 63, 1977.

Society of Industrial Accountants of Canada. The Management Accountants' Body of Knowledge. Revised edition. Hamilton, Ontario: Society of Industrial Accountants of Canada, 1976.

_____. Advanced Studies Program Body of Knowledge. Hamilton, Ontario: Society of Industrial Accountants of Canada, 1977.

Shaw, Marvin E.; and Wright, Jack M. Scales for the Measurement of Attitudes. New York: McGraw-Hill Inc., 1967.

Shenkir, William G., ed. The Future of Accounting Education. New York: American Institute of Certified Public Accountants, 1974.

Sheriff, Jimmy Don. "An Empirical Investigation of Attitudes Towards Current Values Among Accounting Groups in South Carolina." Ph.D. dissertation, University of Georgia, 1976.

Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill, Inc., 1956.

Snedecor, George W.; and Cochran, William G. Statistical Methods. 6th ed. Ames, Iowa: The Iowa State University Press, 1967.

Solomon, Lanny. "The Computer in Undergraduate Accounting Education: A Survey." Journal of Accountancy, 138 (December 1974): 121-25.

Solomons, David; and Berridge, T.M. Prospectus for a Profession. London: Gee and Co. Ltd., 1974.

Sorenson, James E.; Rhode, John Grant; and Lawler, Edward E III. "The Generation Gap in Public Accounting." Journal of Accountancy, 136 (December 1973): 42.

Staats, Elmer B. "The Role of the Accountant in the 70s." Management Accounting, 53 (April 1972): 13-14.

Staubus, George J. "The Responsibility of Accounting Teachers." The Accounting Review 50 (January 1975): 160-70.

Steger, Joseph, ed., Readings in Statistics for the Behavioral Scientist. New York: Holt, Rinehart and Winston, 1971.

Sterling, Robert R. ed., Research Methodology in Accounting. Lawrence, Kansas: Scholars Book Company, 1972.

_____. "Accounting Research, Education and Practice." Journal of Accountancy, 136 (September 1973): 44-52.

Stiner, Frederic Matthew, Jr. "The Attitudes of Certified Public Accountants Towards Social Accounting: A Survey of National and Nebraska Opinion." Ph.D. dissertation, University of Nebraska - Lincoln, 1976.

Stoddard, F. Don. "The Accountant's Role in Management." Management Acccounting, 60 (July 1978): 42-45.

Stoughton, Warner V. "Bringing Up Management Accountants." Management Accounting, 49 (June 1978): 55-59.

Summers, Edward L. "Accounting Education's New Horizons." Journal of Accountancy, 138 (September 1974): 56-63.

Sundby, Lawrence Charles. "An Inquiry Into the Relationship Between Perceptions of Industrial Engineers and Management Accountants in Selected Areas of Mutual Involvement." Ph.D. dissertation, University of Nebraska - Lincoln, 1975.

Sylvain, Fernant. Dictionaire de la Comptabilité. Toronto, Ontario: Canadian Institute of Chartered Accountants, 1977.

Tubb, A.J. "Why the Management Accountant Must Change, and How." Management Accounting, 53 (February 1975): 53-55.

Usury, Milton F. "Accounting Education - A Look to the Future." Journal of Accountancy, 134 (1972): 86-89.

Vander Weele, Ray. "An Evaluation of the Need for Continuing Education and Professional Development for Certified Public Accountants." Ph.D. dissertation, The University of Wisconsin, 1972.

VanZante, Neal R. "A Survey of the Perceptions of Industrial CMAs on the Importance of Selected Management Accounting Topics." Ph.D. dissertation, Oklahoma State University, 1976.

Vargo, R.J. "Accounting Education Dilemma." Journal of Accountancy, 133 (1972): 26-27.

Veldman, Donald. Fortran Programming for the Behavioural Sciences. New York: Holt, Rinehart and Winston, 1967.

Walcher, Olin D. "The Accounting Concepts Being Taught in the Junior Colleges of the Southern Great Plains States." Ed.D. dissertation, Oklahoma State University, 1970.

Whisenhunt, Jack Wayne. "Selected Elements of Accounting and Business Law Essential to the Preparation of Accountants." Ed.D. dissertation, The University of Oklahoma, 1963.

Whitham, Robert B. "Five Years of University Education Not Required." Journal of Accountancy, 138 (September 1974): 93-96.

Wiersma, William. Research Methods in Education: An Introduction. Philadelphia: J.B. Lippincott Co., 1969.

Willer, David; and Willer, Judith. Systematic Empiricism: Critique of a Pseudoscience. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1973.

Williams, D.Z. "Changes in Accounting Education." Journal of Accountancy, 139 (March 1975) 94-102.

Wolitzer, P.; and Sandman, S. "Bridges Between Accounting Educators and Practitioners." CPA Journal, 48 (August 1976): 23-25.

APPENDIX A

FINAL QUESTIONNAIRE - ENGLISH VERSION

RIA QUESTIONNAIRE

INSTRUCTIONS: Please circle the number to the left of each topic which indicates your opinion of how important the topic is to you in meeting the responsibilities of your current position. The following guideline is presented to aid you in your ratings:

Zero (0)-----No importance
One (1)-----Little importance
Two (2)-----Below average importance
Three (3)-----Above average importance
Four (4)-----Very important
Five (5)-----Extremely important

0 1 2 3 4 5 Microeconomic Theory. Knowledge of supply and demand and the underlying factors for the individual business; understanding of the effects of different types of competition on prices.

5 4 3 2 1 0 Macroeconomic Theory. Knowledge of major economic trends, national and international economic issues; understanding of the effects of monetary and fiscal policies on operations.

0 1 2 3 4 5 Long-term Finance. Knowledge of investment theory and the underlying factors of a firm's cost-of-capital; understanding of the cost of alternative sources of capital.

5 4 3 2 1 0 Organization Theory. Knowledge of hierarchial, line, and staff structures; understanding of the advantages and disadvantages of different organizational plans and structures.

0 1 2 3 4 5 Ethical Considerations. Knowledge of the management accountant's commitments and responsibilities to his employer, to his profession, and to society; understanding of the underlying rationale of professional ethics.

5 4 3 2 1 0 Information Content. Knowledge of the cost and value of information and means of communicating information including report design; understanding of the knowledge as it is utilized in planning and administering information systems.

0 1 2 3 4 5 Behaviour Implications of Information. Knowledge of how individuals react to information and the effects on behaviour of different communication methods; understanding of the knowledge as it is utilized in planning and administering information systems.

5 4 3 2 1 0 Motivation and Perception. Knowledge of human needs and self-fulfillment and the effects of different management styles on behaviour understanding of employee motivation and effects of policy changes on employee behaviour.

0 1 2 3 4 5 Financial Statement Preparation. Knowledge of principal financial statements and disclosure requirements; understanding of the effects of using alternative generally accepted accounting principles.

5 4 3 2 1 0 Conventional Valuation Bases. Knowledge of generally accepted valuation bases for external reporting; understanding of what constitutes generally accepted accounting principles.

0 1 2 3 4 5 Other Valuation Bases. Knowledge of valuation bases which are not currently generally accepted for external reporting; understanding of the advantages and disadvantages of other valuation bases.

5 4 3 2 1 0 Major Regulatory Bodies. Knowledge of the activities of the Canadian Institute of Chartered Accountants, security and exchange commissions, etc., including their influence on reporting requirements; understanding of the influence which these bodies have on generally accepted accounting principles.

0 1 2 3 4 5 Tax Regulations. Knowledge of specific tax laws and tax report preparation; understanding of the effects which tax regulations have on decision-making.

5 4 3 2 1 0 Other Groups. Knowledge of the activities of other regulatory agencies, labour unions, consumer groups, etc.; understanding of the effects which these groups have on reporting requirements and business operations.

0 1 2 3 4 5 International Reporting. Knowledge of international reporting standards; understanding of foreign currency translation including the ability to apply understanding to specific circumstances.

5 4 3 2 1 0 Social Measurement and Reporting. Knowledge of techniques available to measure the meeting of social responsibilities, understanding of appropriate reporting methods.

0 1 2 3 4 5 Financial Statement Analysis. Knowledge of techniques for analyzing principal financial statements, including use of this knowledge for decisions involving consolidations, mergers, and acquisitions; understanding of the utilization of specific analytical measures.

5 4 3 2 1 0 Working Capital Management. Knowledge of policies and procedures which affect working capital accounts; understanding of methods available for planning and controlling specific accounts.

0 1 2 3 4 5 Capital Budgeting. Knowledge of budgeting techniques for long-run decision-making; understanding of methods available for evaluating alternative proposals.

5 4 3 2 1 0 Forecasting. Knowledge of forecasting techniques as utilized in the preparation of budgets; understanding of the different variables and their interrelationships as utilized in forecast preparation.

0 1 2 3 4 5 Segment Accounting. Knowledge of techniques utilized in evaluating performance of divisions, departments, products, etc.; understanding of the effect that alternative interdepartmental charges have on performance evaluation.

5 4 3 2 1 0 Cost Behaviour. Knowledge of cost behaviour such as fixed-variable relationships including profit-volume analysis; understanding of the knowledge as it affects managerial decision-making.

0 1 2 3 4 5 Variance Analysis. Knowledge of techniques used for determination of variances from established forecasts; understanding of necessary corrective actions based on the analysis of variances.

5 4 3 2 1 0 Independent Auditing. Knowledge of the reasons for independent audits and the ethical and legal responsibilities of the independent auditors; understanding of the relationship of the independent auditor to his client and to outsiders.

0 1 2 3 4 5 Internal Auditing. Knowledge of the activities of the internal auditor and of the differences between internal and independent auditing; understanding of specific techniques utilized by the internal auditor and of specific methods of achieving good internal control.

5 4 3 2 1 0 Computer Systems. Knowledge of computer systems including their capabilities and control devices; understanding of how the computer may be utilized for various business activities.

0 1 2 3 4 5 Computer Programming. Knowledge of computer programming language(s); understanding of the knowledge including the ability to participate in actual programming.

5 4 3 2 1 0 Quantitative Methods. Knowledge of specific higher-level quantitative methods such as queing theory, simulation methods, etc.; understanding of these methods including the ability to apply them to specific cases.

INSTRUCTIONS: From the preceeding 28 topics, please select the five topics which are the most important to you and allocate 100 points among them to indicate their relative importance.

TOPICS	POINTS
TOTAL	100

APPENDIX B

FINAL QUESTIONNAIRE - FRENCH VERSION

QUESTIONNAIRE RIA

INSTRUCTIONS: S.V.P. encerclez le numéro à gauche de chaque sujet lequel indique votre opinion sur l'importance qu'est le sujet pour vous tout en rencontrant les responsabilités de votre position courante. L'exemple suivant vous est présenté pour vous aider dans votre classement:

Zéro	(0)-----Pas d'importance
Un	(1)-----Peu d'importance
Deux	(2)-----L'importance inférieure à la moyenne
Trois	(3)-----L'importance supérieure à la moyenne
Quatre	(4)-----Très important
Cinq	(5)-----Extrêmement important

0 1 2 3 4 5 Théorie Micro-économique. Connaissance d'offre et de demande ainsi que les facteurs fondamentaux pour les entreprises individuelles; compréhension des effets de différents types de compétition sur les prix.

5 4 3 2 1 0 Théorie Macro-économique. Connaissance des tendances économiques majeures, questions économiques nationales et internationales; compréhension des effets des politiques monétaires et fiscales sur les opérations.

0 1 2 3 4 5 Finance à long terme. Connaissance de la théorie d'investissement et des facteurs fondamentaux du coût du capital d'une firme; compréhension du coût des sources alternatives du capital.

5 4 3 2 1 0 Théorie d'Organisation. Connaissance hiérarchique, ligne, et structures du personnel ("line" et "staff"); compréhension des avantages et des désavantages de différents plans et structures organisationnels.

0 1 2 3 4 5 Considérations Morales. Connaissance des engagements et des responsabilités du comptable en gestion envers son employeur, sa profession, et la société; compréhension de la raison fondamentale sur laquelle les considérations morales sont basées.

5 4 3 2 1 0 Contenu d'Information. Connaissance du coût et de la valeur de l'information et les moyens de communiquer l'information incluant un rapport model; compréhension de la connaissance telles qu'utilisée dans la planification et l'administration des systèmes d'information.

0 1 2 3 4 5 Les Implications de Conduite d'Information. Savoir comment les individus réagissent à l'information et les effets sur le comportement des différentes méthodes de communication; compréhension de la connaissance telle qu'utilisée dans la planification et l'administration des systèmes d'information.

5 4 3 2 1 0 Motivation et Perception. Connaissance des besoins humanitaires et des accomplissements, et les effets de différents styles de gestion sur la conduite; compréhension de la motivation de l'employé et les effets de changements de politiques sur le comportement de l'employé.

0 1 2 3 4 5 Préparation du Rapport Financier. Connaissance des principaux rapports financiers et des modes de préparation; compréhension des effets de l'utilisation de principes de comptabilité généralement reconnus alternatifs.

5 4 3 2 1 0 Bases d'Evaluation Conventionnelle. Connaissance des bases d'évaluation généralement reconnues pour rapports externes; compréhension de ce qui constitue les principes de comptabilité généralement reconnus.

0 1 2 3 4 5 Autres Bases d'Evaluation. Connaissance des bases d'évaluation lesquelles ne sont pas généralement et couramment reconnues pour rapports externes; compréhension des avantages et des désavantages des autres bases d'évaluation.

5 4 3 2 1 0 Organismes Majeurs de Réglementation. Connaissance des activités de l'Institut Canadien des Comptables Agréés, Commission de valeurs mobilières, etc., incluant l'influence qu'ils ont sur l'établissement de rapports et des principes comptables généralement reconnus.

0 1 2 3 4 5 Réglementations d'Impôt. Connaissance des lois d'impôt spécifiques et préparation de rapport d'impôt; compréhension des effets que les réglementations d'impôt ont sur les prises de décisions.

5 4 3 2 1 0 Autres Groupes. Connaissance des activités de d'autres agences de réglementation, syndicats, associations de consommateurs, etc., compréhension des effets que ces groupes ont sur la détermination des exigences des rapports et des opérations d'affaires.

0 1 2 3 4 5 Rapport International. Connaissance des exigences de rapport international; compréhension dans les échanges de monnaie étrangère, incluant l'habileté d'appliquer cette compréhension à des circonstances spécifiques.

5 4 3 2 1 0 Rapport et Aspect Social. Connaissance des techniques disponibles pour mesurer le degré d'atteinte des responsabilités sociales, compréhension des méthodes de rapport appropriées.

0 1 2 3 4 5 Rapport d'Analyse Financière. Connaissance des techniques pour analyse des principaux rapports financiers, incluant l'utilisation de cette connaissance pour des décisions impliquant consolidations, fusions, et acquisitions; compréhension de l'utilisation de mesures analytiques spécifiques.

5 4 3 2 1 0 Gestion du Fonds de Roulement. Connaissance des politiques et des procédures lesquelles affectent les comptes de fonds de roulement; compréhension de méthodes disponibles pour planification et le contrôle des comptes spécifiques.

0 1 2 3 4 5 Gestion d'Investissement. Connaissance des techniques budgétaires pour les décisions à long terme; compréhension de méthodes disponibles pour évaluer des propositions alternatives.

5 4 3 2 1 0 Prédiction. Connaissance des techniques de prédiction telles qu'utilisées dans la préparation des budgets: compréhension de différentes variables et leur réciprocité telles qu'utilisées dans la préparation de prédiction.

0 1 2 3 4 5 Comptabilité Divisionnaire. Connaissance des techniques utilisées dans l'évaluation de performance de divisions, départements, produits, etc.; compréhension de l'effet qu'ont les charges inter-départementales alternatives sur la performance d'évaluation.

5 4 3 2 1 0 Comportement des Coûts. Connaissance du comportement des coûts telle que la relation entre les frais fixes et variables incluant l'analyse de volume-profit; compréhension de la connaissance de la façon telle qu'elle affecte les décisions prises par la direction.

0 1 2 3 4 5 Analyse d'Ecart. Connaissance des techniques employées pour déterminer les écarts des prédictions déjà établies; compréhension des mesures correctives nécessaires à apporter, basées sur l'analyse des écarts.

5 4 3 2 1 0 Vérification Indépendante. Connaissance des raisons pour les vérifications indépendantes et les responsabilités légales et morales des vérificateurs indépendants; compréhension de la relation du vérificateur indépendant envers son client, et aux étrangers.

0 1 2 3 4 5 Vérification Interne. Connaissance des activités du vérificateur interne et des différences entre le vérificateur interne et l'indépendant; compréhension des techniques spécifiques utilisées par le vérificateur interne et des méthodes spécifiques pour accomplir un bon contrôle interne.

5 4 3 2 1 0 Systèmes d'Ordinateur. Connaissance des systèmes d'ordinateur incluant leurs capacités et leurs dispositifs de contrôle; compréhension de la façon dont l'ordinateur peut être employé en affaires pour différentes activités.

0 1 2 3 4 5 Programmation d'Ordinateur. Connaissance des langages de programmation d'ordinateur; compréhension de la connaissance incluant l'habileté de participer à la programmation.

5 4 3 2 1 0 Méthodes Quantitatives. Connaissance spécifique du plus haut niveau de méthodes quantitatives telles que théories de file d'attente, méthodes de simulation, etc.; compréhension de ces méthodes incluant l'habileté à les appliquer à des cas spécifiques.

INSTRUCTIONS: Parmi les 28 sujets précédents, sélectionnez les cinq sujets les plus importants pour vous et allouez 100 points pour indiquer leur importance relative.

SUJETS	POINTS
TOTAL	100

APPENDIX C

COVERING LETTER - FIRST MAILING
ENGLISH VERSION

MANAGEMENT ACCOUNTANT SURVEY

106 de Picardie
St. Lambert, Quebec

November 4, 1977

Dear Fellow R.I.A.;

The Society of Management Accountants of Canada is co-operating with me in a research project. The project is designed to obtain information relevant to the Society's R.I.A. curriculum, research and professional development programs. This information will be used to improve existing programs or to develop new ones.

Your name has been selected at random as part of a representative sample of R.I.A.'s in your area. As you know, when using a scientifically selected sample each selected person's response is extremely important to the results of the study.

The enclosed questionnaire is designed to obtain useful information without imposing too heavily on your busy schedule. Please return your completed questionnaire, either the English or French version, by November 18, 1977, using the envelope provided. Thank you.

Yours truly,

Frank Sbrocchi, R.I.A.

APPENDIX D

COVERING LETTER - FIRST MAILING

FRENCH VERSION

SONDAGE DES COMPTABLES EN MANAGEMENT

106 de Picardie
St. Lambert, Québec

4 novembre 1977

Cher ami R.I.A.,

La Société des comptables en management du Canada coopère avec moi dans un projet de recherche. Ce projet consiste à obtenir de l'information pertinente au curriculum de la Société R.I.A., à la recherche et au développement professionnel des programmes. Cette information sera utilisée pour améliorer les programmes déjà existants ou pour en créer de nouveaux.

Votre nom a été sélectionné au hasard comme faisant partie d'un échantillon représentatif des R.I.A.s dans votre région. Comme vous le savez, quand on utilise un échantillon sélectionné scientifiquement, la réponse de chaque personne choisie est très importante pour les résultats de l'étude.

Le questionnaire ci-joint est destiné à obtenir de l'information utile sans trop déranger votre horaire chargé. S.v.p. retournez votre questionnaire dûment complété, soit en anglais, soit en français, d'ici au 18 novembre 1977, en utilisant l'enveloppe fournie. Merci de votre collaboration.

Bien vôtre,

Frank Sbrocchi, R.I.A.

APPENDIX E

COVERING LETTER - SECOND MAILING
ENGLISH VERSION

MANAGEMENT ACCOUNTANT SURVEY

106 de Picardie
St. Lambert, Quebec

November 25, 1977

Dear Fellow R.I.A.:

On November 4, I mailed a copy of the attached questionnaire to you and other, selected R.I.A.s. The majority of the questionnaires have been returned, and several R.I.A.s have expressed appreciation for the opportunity to contribute their valuable opinions to the study.

If you are among those who have not yet responded I would appreciate your taking a few minutes to complete your questionnaire and return it to me. If you have already mailed your questionnaire please ignore this second request and accept my thanks for your cooperation.

Yours truly,

Frank Sbrocchi, R.I.A.

APPENDIX F

COVERING LETTER - SECOND MAILING

FRENCH VERSION

SONDAGE DES COMPTABLES EN MANAGEMENT

106 de Picardie
St. Lambert, Québec

25 novembre 1977

Cher ami R.I.A.:

Le 4 novembre dernier je vous envoyé, ainsi qu'à d'autres R.I.A.s sélectionnés, une copie du questionnaire ci-joint. La majorité des questionnaires m'est revenue, et plusieurs R.I.A.s m'ont exprimé leur appréciation d'avoir l'opportunité de contribuer par leur opinion à cette étude.

Si vous êtes parmi ceux qui n'ont pas encore répondu, j'apprécierais que vous preniez quelques minutes pour remplir votre questionnaire et me le retourner. Si vous avez déjà posté votre questionnaire, s.v.p. ignorez ce second avis et acceptez mes remerciements pour votre coopération.

Sincèrement vôtre

Frank Sbrocchi, R.I.A.

APPENDIX G

TOTAL RESPONSES TO PART ONE OF THE QUESTIONNAIRE

APPENDIX G

Total Responses to Part One of the Questionnaire

	Importance Ratings (N=1425)							
	0	1	2	3	4	5	Skewness	Kurtosis
Microeconomic Theory	199	317	339	315	178	77	.203	-.796
Macroeconomic Theory	128	254	341	419	209	74	-.040	-.667
Longterm Finance	103	181	279	350	320	192	-.257	-.807
Organization Theory	48	153	330	459	283	152	-.156	-.468
Ethical Considerations	26	110	221	399	391	278	-.444	-.448
Information Content	13	53	145	356	495	363	-.720	.167
Behavioural Implications	19	88	225	436	444	213	-.447	-.226
Motivation & Perception	23	86	199	446	438	233	-.510	-.103
Financial Statement Preparation	13	56	136	323	416	481	-.798	.067
Conventional Valuation Bases	41	88	199	433	385	279	-.546	-.152
Other Valuation Bases	96	221	400	439	207	62	-.068	-.451
Major Regulatory Bodies	98	220	408	371	218	110	.040	-.592
Tax Regulations	93	151	253	311	294	323	-.368	-.856
Other Groups	94	227	406	436	215	47	-.097	-.476
International Reporting	369	339	324	231	117	45	.499	-.624
Social Measurement	230	401	436	268	71	19	.330	-.352
Financial Statement Analysis	66	111	190	297	414	347	-.675	-.381
Working Capital	51	122	182	375	403	292	-.590	-.348
Capital Budgeting	52	105	175	374	423	296	-.656	-.185
Forecasting	27	68	145	312	433	440	-.843	.162
Segment Accounting	72	111	185	387	411	259	-.623	-.264
Cost Behaviour	72	116	203	342	392	300	-.586	-.438
Variance Analysis	54	98	211	351	433	278	-.617	-.253
Independent Auditing	70	146	285	426	301	197	-.278	-.555
Internal Auditing	52	130	244	426	370	203	-.411	-.415
Computer Systems	34	66	149	400	442	334	-.742	.238
Computer Programming	249	329	368	304	113	62	.330	-.584
Quantitative Methods	280	349	376	290	106	24	.288	-.672

APPENDIX H

INDUSTRY SUB-GROUPS - TOPIC MEAN RATINGS

APPENDIX H

Industry Sub-Groups - Topic Mean Ratings

Topics	A (1425)	1 (382)	2 (61)	3 (78)	4 (39)	5 (29)	6 (102)	7 (63)	8 (24)	9 (176)	10 (126)	11 (30)	12 (44)	13 (100)	14 (121)	15 (20)	16 (30)
Microeconomic Theory(1)	2.13	2.41	2.66	2.10	2.97	2.28	2.61	2.22	1.79	1.69	1.54	1.53	1.77	1.72	2.40	1.65	1.70
Macroeconomic Theory(2)	2.39	2.48	2.69	2.35	2.87	2.62	2.59	2.76	2.29	1.98	2.21	1.93	2.21	2.28	2.47	2.25	2.23
Longterm Finance(3)	2.83	2.90	3.31	2.74	3.36	2.97	3.12	3.48	2.75	1.96	2.10	2.77	2.86	3.19	3.51	2.30	2.60
Organization Theory(4)	2.87	2.74	2.66	2.64	3.15	2.90	2.72	2.89	3.00	2.86	3.12	3.13	2.89	3.23	2.53	3.90	3.50
Ethical Considerations(5)*	3.30	3.28	3.31	2.99	3.72	3.38	3.35	3.16	3.50	3.19	3.33	3.30	3.11	3.29	3.50	3.75	3.50
Information Content(6)	3.65	3.75	3.46	3.58	4.00	3.69	3.66	3.44	3.54	3.31	3.68	3.77	3.73	3.99	3.61	3.60	3.83
Behavioural Implications(7)*	3.29	3.39	3.31	3.33	3.51	3.17	3.31	3.19	3.25	3.00	3.26	3.60	3.43	3.42	3.06	3.40	3.53
Motivation & Perception(8)	3.33	3.41	3.31	3.27	3.54	3.41	3.43	3.33	3.42	3.04	3.23	3.37	3.59	3.46	2.98	4.00	3.70
Financial Statement Preparation(9)	3.77	3.70	3.80	3.50	4.10	3.90	3.99	3.83	4.08	3.71	3.52	3.43	3.75	3.58	4.36	3.75	3.47
Conventional Valuation Bases(10)	3.31	3.33	3.34	3.04	3.74	3.07	3.31	3.25	3.50	3.24	3.08	3.00	3.02	3.25	4.02	3.40	2.77
Other Valuation Bases(11)	2.44	2.50	2.36	2.23	2.67	2.48	2.30	2.41	2.46	2.42	2.27	2.07	2.09	2.41	3.10	2.00	2.00
Major Regulatory Bodies(12)	2.51	2.27	2.28	2.51	2.72	2.38	2.45	2.60	2.25	2.49	2.44	2.20	2.30	2.81	3.55	2.05	2.10
Tax Regulations(13)	3.07	3.01	3.69	3.23	3.13	3.00	3.51	2.91	3.13	3.26	2.58	1.93	2.68	2.37	4.31	1.95	1.90
Other Groups(14)	2.42	2.42	2.69	2.28	2.77	2.17	2.42	2.38	1.92	2.28	2.16	2.43	2.21	2.58	2.74	2.50	2.60
International Reporting (15)	1.67	2.05	1.57	2.08	2.03	1.93	1.64	1.59	1.33	1.37	1.24	0.93	1.41	1.52	1.84	0.70	0.80
Social Measurement(16)*	1.72	1.71	1.51	1.64	2.03	1.79	1.47	1.89	1.46	1.71	1.94	2.20	1.46	1.70	1.70	1.70	2.17
Financial Statement Analysis(17)	3.35	3.30	3.20	3.26	3.59	3.21	3.58	3.68	3.71	3.46	3.02	2.50	3.34	3.02	4.06	2.55	2.93
Working Capital(18)	3.29	3.45	3.57	2.95	3.51	3.69	3.72	3.54	3.50	2.65	2.48	3.37	3.36	3.09	3.96	3.30	3.57
Capital Budgeting(19)	3.33	3.55	3.44	3.37	3.77	3.41	3.43	3.38	3.42	2.57	2.74	3.67	3.43	3.64	3.61	3.50	3.37
Forecasting(20)	3.67	3.98	3.75	3.64	4.18	3.93	3.85	3.68	3.63	2.84	3.20	4.10	3.71	3.78	3.62	3.80	4.17
Segment Accounting(21)	3.22	3.61	3.12	2.95	3.82	3.45	3.57	2.83	3.38	2.71	2.71	3.43	3.57	2.79	3.20	3.05	3.60
Cost Behaviour(22)	3.24	3.92	3.20	2.91	3.95	3.62	3.31	3.03	3.17	2.65	2.34	2.83	3.48	2.65	3.61	2.65	2.57
Variance Analysis(23)	3.30	3.85	3.07	3.31	3.95	3.55	3.13	2.94	3.33	2.79	2.87	3.30	3.41	3.14	3.12	2.60	3.13
Independent Auditing(24)	2.94	2.81	2.87	2.60	3.10	2.69	2.83	2.81	3.04	3.24	2.98	2.60	2.55	2.69	3.72	2.80	2.70
Internal Auditing(25)	3.08	2.92	2.49	2.85	3.21	2.59	2.82	3.06	2.92	3.57	3.51	3.47	2.82	2.92	3.31	2.95	3.30
Computer Systems(26)*	3.51	3.55	3.08	3.67	3.80	3.24	3.35	3.30	3.54	3.45	3.63	3.57	3.64	3.81	3.34	4.00	3.27
Computer Programming(27)*	1.92	1.87	1.43	1.92	2.13	1.35	1.80	1.86	2.42	1.91	2.12	2.27	1.98	2.20	1.88	2.50	1.73
Quantitative Methods(28)*	1.77	1.83	1.33	1.50	2.03	1.38	1.52	1.79	1.83	1.76	1.80	1.73	1.64	2.06	1.89	1.90	1.83
Column Means	2.90	3.00	2.88	2.80	3.26	2.90	2.96	2.90	2.91	2.68	2.68	2.80	2.84	2.88	3.18	2.80	2.81

* Topics which do not show differences among sub-groups ($p > .01$, see Exhibit 33).

Column Key: A. All Respondents
1. Manufacturing
2. Construction
3. Natural Resources
4. Agriculture & Food
5. Other Industrial
6. Wholesale/Retail
7. Finance/Insurance
8. Other Commerce
9. Federal
10. Provincial
11. Municipal
12. Transportation
13. Utilities
14. Public Accounting
15. Education
16. Medical, Health & Welfare

APPENDIX I

INDUSTRY SUB-GROUPS - RANKS OF TOPIC MEANS

APPENDIX I

Industry Sub-Groups - Ranks of Topic Means

Topics	A (1425)	1 (382)	2 (61)	3 (78)	4 (39)	5 (29)	6 (102)	7 (63)	8 (24)	9 (176)	10 (126)	11 (30)	12 (44)	13 (100)	14 (121)	15 (20)	16 (30)
Financial Statement Preparation(9)	1	5	1	4	2	2	1	1	1	1	3	7	1	5	1	5	9
Forecasting(20)	2	1	2	2	1	1	2	2	3	13	8	1	3	3	7	4	1
Information Content(6)	3	4	5	3	3	3	4	6	4	5	1	2	2	1	9	7	2
Computer Systems(26)*	4	7	15	1	7	11	11	8	5	4	2	5	4	2	14	2	12
Financial Statement Analysis(17)	5	13	13	9	11	12	5	3	2	3	11	18	12	14	3	17	14
Capital Budgeting(19)	6	8	6	5	8	9	9	7	9	18	14	3	9	4	8	8	10
Motivation & Perception(8)	7	10	9	8	12	8	8	9	10	10	7	9	5	6	20	1	3
Conventional Valuation Bases(10)	8	12	7	11	9	14	13	10	6	7	10	14	14	9	4	9	15
Ethical Considerations(5)*	9	14	10	12	10	10	10	12	8	9	5	11	13	8	13	6	7
Variance Analysis(23)	10	3	16	7	4	6	15	15	12	14	13	12	10	12	17	16	13
Behavioural Implications(7)*	11	11	8	6	14	13	12	11	13	11	6	4	8	7	19	10	6
Working Capital(18)	12	9	4	13	13	4	3	4	7	16	17	9	11	13	5	11	5
Cost Behaviour(22)	13	2	12	15	5	5	14	14	14	17	19	15	7	19	10	15	19
Segment Accounting(21)	14	6	14	14	6	7	6	18	11	15	15	8	6	17	16	12	4
Internal Auditing(25)	15	16	22	16	16	20	18	13	18	2	4	6	17	15	15	13	11
Tax Regulations(13)	16	15	3	10	18	15	7	16	15	6	16	25	18	22	2	24	24
Independent Auditing(24)	17	18	17	19	19	18	17	19	16	8	12	17	19	18	6	14	16
Organization Theory(4)	18	19	20	18	17	17	19	17	17	12	9	13	15	10	22	3	8
Longterm Finance(3)	19	17	11	17	15	16	16	5	19	23	24	16	16	11	12	20	18
Major Regulatory Bodies(12)	20	24	24	20	23	22	22	21	23	19	18	22	20	16	11	22	22
Other Valuation Bases(11)	21	20	23	23	24	21	24	22	20	20	20	23	23	21	18	23	23
Other Groups(14)	22	22	18	22	22	24	23	23	24	21	22	19	21	20	21	18	17
Macroeconomic Theory(2)	23	21	19	21	21	19	20	20	22	22	21	24	21	23	23	21	20
Microeconomic Theory(1)	24	23	21	24	20	23	21	24	26	27	27	27	25	26	24	27	27
Computer Programming(27)*	25	26	27	26	25	28	25	26	21	24	23	20	24	24	26	19	26
Quantitative Methods(28)*	26	27	28	28	28	27	27	27	25	25	26	26	26	25	25	25	25
Social Measurement(16)*	27	28	26	27	27	26	28	25	27	26	25	21	27	27	28	26	21
International Reporting(15)	28	25	25	25	26	25	26	28	28	28	28	28	28	28	27	28	28

* Topics which do not show differences among sub-groups (p .01, see Exhibit 33).

Column Key: A. All Respondents
1. Manufacturing
2. Construction
3. Natural Resources
4. Agriculture & Food
5. Other Industrial
6. Wholesale/Retail
7. Finance/Insurance
8. Other Commerce
9. Federal
10. Provincial
11. Municipal
12. Transportation
13. Utilities
14. Public Accounting
15. Education
16. Medical, Health & Welfare

APPENDIX J

ACCOUNTING SECTOR SUB-GROUPS - TOPIC MEAN RATINGS

APPENDIX J

Accounting Sector Sub-Groups - Topic Mean Ratings

Topics	A (1425)	1 (244)	2 (159)	3 (233)	4 (407)	5 (89)	6 (79)	7 (134)	8 (35)	9 (45)
Microeconomic Theory(1)	2.13	1.79	1.74	2.08	2.48	3.02	2.41	1.62	1.54	2.24
Macroeconomic Theory(2)	2.39	2.05	2.15	2.45	2.66	3.07	2.43	1.85	2.00	2.67
Longterm Finance(3)	2.83	2.72	2.47	2.67	3.11	3.67	3.54	1.99	2.57	2.71
Organization Theory(4)	2.87	2.51	2.76	3.14	2.98	3.21	2.47	2.69	3.37	2.89
Ethical Considerations(5)*	3.30	3.24	3.12	3.38	3.40	3.27	3.61	3.13	3.20	3.07
Information Content(6)	3.65	3.62	3.62	3.69	3.79	3.47	3.58	3.28	4.40	3.56
Behavioural Implications(7)	3.29	3.10	3.36	3.45	3.41	3.37	2.99	2.91	4.11	3.00
Motivation & Perception(8)	3.33	2.90	3.46	3.54	3.58	3.71	2.96	2.77	3.63	3.09
Financial Statement Preparation(9)	3.77	3.78	3.44	3.51	3.96	3.78	4.51	3.76	3.31	3.47
Conventional Valuation Bases(10)	3.31	3.34	3.01	3.07	3.44	3.28	4.15	3.43	2.69	3.04
Other Valuation Bases(11)	2.44	2.34	2.20	2.25	2.57	2.53	3.15	2.51	2.00	2.31
Major Regulatory Bodies(12)	2.51	2.38	2.19	2.31	2.54	2.43	3.71	2.82	2.34	2.22
Tax Regulations(13)	3.07	2.99	2.90	2.77	3.01	3.38	4.35	3.34	2.46	3.13
Other Groups(14)	2.42	2.20	2.30	2.37	2.56	2.90	2.65	2.19	2.23	2.42
International Reporting(15)*	1.67	1.53	1.60	1.70	1.81	1.85	1.71	1.43	1.49	1.56
Social Measurement(16)	1.72	1.43	1.55	1.72	1.97	2.05	1.58	1.52	1.86	1.80
Financial Statement Analysis(17)	3.35	3.20	3.03	3.06	3.54	3.82	4.13	3.26	2.69	3.58
Working Capital(18)	3.29	3.06	2.76	3.13	3.71	3.94	3.87	2.67	2.86	3.18
Capital Budgeting(19)	3.33	3.21	3.00	3.27	3.70	3.89	3.65	2.48	3.17	3.24
Forecasting(20)	3.67	3.52	3.50	3.71	4.12	4.01	3.67	2.62	3.14	3.58
Segment Accounting(21)	3.22	3.13	3.09	3.12	3.56	3.48	3.10	2.55	3.34	3.07
Cost Behaviour(22)	3.24	3.18	2.94	3.14	3.51	3.75	3.60	2.58	3.03	3.20
Variance Analysis(23)	3.30	3.39	3.18	3.31	3.59	3.43	3.15	2.41	3.23	3.11
Independent Auditing(24)	2.94	2.77	2.76	2.66	2.93	2.94	3.99	3.48	2.54	2.78
Internal Auditing(25)	3.08	2.81	3.01	2.91	3.09	2.92	3.33	3.88	3.23	3.07
Computer Systems(26)	3.51	3.30	3.41	3.52	3.67	3.24	3.42	3.58	4.23	3.47
Computer Programming(27)*	1.92	1.89	1.75	1.88	1.93	1.62	1.92	2.17	2.69	2.11
Quantitative Methods(28)	1.77	1.57	1.50	1.86	1.88	1.84	1.85	1.77	1.97	1.82
Column Means	2.90	2.75	2.71	2.85	3.09	3.14	3.20	2.67	2.83	2.84

* Topics which do not show differences among sub-groups (p .01, see Exhibit 33).

Column Key: A. All Respondents 1. Accountant 2. Manager 3. Supervisor 4. Senior Financial Officer 5. General Manager 6. Public Accountant 7. Internal Auditor 8. System Analyst 9. Other

APPENDIX K

ACCOUNTING SECTOR SUB-GROUPS - RANKS OF TOPIC MEANS

APPENDIX K

Accounting Sector Sub-Groups - Ranks of Topic Means

Topics	A (1425)	1 (244)	2 (159)	3 (233)	4 (407)	5 (89)	6 (79)	7 (134)	8 (35)	9 (45)
Financial Statement Preparation(9)	1	1	4	6	2	5	1	2	7	5
Forecasting(20)	2	3	2	1	1	1	8	15	12	1
Information Content(6)	3	2	1	2	3	10	12	7	1	3
Computer Systems(26)	4	6	5	5	6	16	14	3	2	4
Financial Statement Analysis(17)	5	9	10	15	10	4	4	8	17	1
Capital Budgeting(19)	6	8	13	9	5	3	9	19	11	6
Motivation & Perception(8)	7	15	3	4	8	7	20	12	4	11
Conventional Valuation Bases(10)	8	5	11	14	12	14	3	5	15	15
Ethical Considerations(5)*	9	7	8	8	14	15	10	9	10	12
Variance Analysis(23)	10	4	7	3	7	11	17	20	9	10
Behavioural Implications(7)	11	12	6	7	13	13	19	10	3	16
Working Capital(18)	12	13	17	12	4	2	6	14	14	8
Cost Behaviour(22)	13	10	14	11	11	6	11	16	13	7
Segment Accounting(21)	14	11	9	13	9	9	18	17	6	14
Internal Auditing(25)	15	16	12	16	16	21	15	1	8	13
Tax Regulations(13)	16	14	15	17	17	12	2	6	20	9
Independent Auditing(24)	17	17	16	19	19	20	5	4	19	18
Organization Theory(4)	18	19	18	10	18	17	22	13	5	17
Longterm Finance(3)	19	18	19	18	15	8	13	23	18	19
Major Regulatory Bodies(12)	20	20	22	21	23	24	7	11	21	24
Other Valuation Bases(11)	21	21	21	23	21	23	16	18	24	22
Other Groups(14)	22	22	20	22	22	22	21	21	22	21
Macroeconomic Theory(2)	23	23	23	20	20	18	23	24	23	20
Microeconomic Theory(1)	24	25	25	24	24	19	24	26	27	23
Computer Programming(27)*	25	24	24	25	26	28	25	22	16	25
Quantitative Methods(28)	26	26	28	26	27	27	26	25	25	26
Social Measurement(16)	27	28	27	27	25	25	28	27	26	27
International Reporting(15)*	28	27	26	28	28	26	27	28	28	28

* Topics which do not show differences among sub-groups ($p > .01$, see Exhibit 33).

Column Key: A. All Respondents 1. Accountant 2. Manager 3. Supervisor 4. Senior Financial Officer 5. General Manager 6. Public Accountant 7. Internal Auditor 8. System Analyst 9. Other

APPENDIX L

DESIGNATION YEAR SUB-GROUPS - TOPIC MEAN RATINGS

APPENDIX L

Designation Year Sub-Groups - Topic Mean Ratings

Topics	ALL (1425)	*1 (90)	2 (100)	3 (301)	4 (495)	5 (439)
Microeconomic Theory	2.13	2.20	2.07	2.20	2.24	1.97
Macroeconomic Theory	2.39	2.50	2.47	2.43	2.39	2.31
Longterm Finance	2.83	2.91	2.95	2.79	2.90	2.73
Organization Theory	2.87	3.11	2.85	2.83	2.95	2.75
Ethical Considerations*	3.30	3.69	3.49	3.37	3.22	3.22
Information Content	3.65	3.82	3.47	3.60	3.68	3.67
Behavioural Implications	3.29	3.34	3.25	3.26	3.32	3.27
Motivation & Perception	3.33	3.51	3.33	3.42	3.39	3.15
Financial Statement Preparation	3.77	3.90	3.87	3.69	3.70	3.85
Conventional Valuation Bases	3.31	3.27	3.33	3.24	3.31	3.38
Other Valuation Bases	2.44	2.39	2.44	2.41	2.53	2.37
Major Regulatory Bodies	2.51	2.70	2.51	2.41	2.50	2.54
Tax Regulations	3.07	3.03	3.21	3.15	3.00	3.08
Other Groups	2.42	2.58	2.43	2.54	2.36	2.35
International Reporting	1.67	1.69	1.75	1.70	1.65	1.64
Social Measurement*	1.72	1.92	1.83	1.79	1.76	1.57
Financial Statement Analysis	3.35	3.60	3.49	3.39	3.27	3.33
Working Capital	3.29	3.39	3.37	3.31	3.27	3.25
Capital Budgeting	3.33	3.39	3.33	3.31	3.40	3.26
Forecasting	3.67	3.66	3.60	3.72	3.74	3.57
Segment Accounting	3.22	3.12	3.02	3.23	3.35	3.11
Cost Behaviour	3.24	3.13	3.15	3.26	3.32	3.18
Variance Analysis	3.30	3.21	3.28	3.24	3.35	3.30
Independent Auditing	2.94	3.03	3.02	2.86	2.85	3.04
Internal Auditing	3.08	3.16	2.99	3.10	3.08	3.08
Computer Systems	3.51	3.53	3.32	3.43	3.56	3.55
Computer Programming	1.92	2.20	1.82	1.82	1.93	1.95
Quantitative Methods	1.77	1.90	1.74	1.81	1.82	1.65
Column Means	2.90	3.00	2.91	2.90	2.92	2.86

* Topics which show differences among sub-groups ($p \leq .01$, see Exhibit 33).

Column Key:

1. Years 1959 and earlier
2. Years 1960-1964
3. Years 1965-1969
4. Years 1970-1974
5. Years 1975-1977

APPENDIX M

DESIGNATION YEAR - RANKS OF TOPIC MEANS

APPENDIX M

Designation Year - Ranks of Topic Means

Topics	Designation Year Sub-Groups					
	ALL	1	2	3	4	5
Financial Statement Preparation	1	1	1	2	2	1
Forecasting	2	4	2	1	1	3
Information Content	3	2	5	3	3	2
Computer Systems	4	6	10	4	4	4
Financial Statement Analysis	5	5	4	6	12	6
Capital Budgeting	6	8	9	9	5	9
Motivation & Perception	7	7	8	5	6	13
Conventional Valuation Bases	8	11	7	12	11	5
Ethical Considerations*	9	3	3	7	14	11
Variance Analysis	10	12	11	13	8	7
Behavioural Implications	11	10	12	10	9	8
Working Capital	12	9	6	8	13	10
Cost Behaviour	13	14	14	11	10	12
Segment Accounting	14	15	16	14	7	14
Internal Auditing	15	13	17	16	15	16
Tax Regulations	16	18	13	15	16	15
Independent Auditing	17	17	15	17	19	17
Organization Theory	18	16	19	18	17	18
Longterm Finance	19	19	18	19	18	19
Major Regulatory Bodies	20	20	20	23	21	20
Other Valuation Bases	21	23	22	22	20	21
Other Groups	22	21	23	20	23	22
Macroeconomic Theory	23	22	21	21	22	23
Microeconomic Theory	24	24	24	24	24	24
Computer Programming	25	25	26	25	25	25
Quantitative Methods	26	27	28	26	26	26
Social Measurement*	27	26	25	27	27	28
International Reporting	28	28	27	28	28	27

* Topics which show differences among sub-groups ($p \leq .01$, see Exhibit 33).

Column Key:

1. Years 1959 and earlier
2. Years 1960-1964
3. Years 1965-1969
4. Years 1970-1974
5. Years 1975-1977

APPENDIX N

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF ALL RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX N

VARIMAX Rotated Factor Matrix of the Responses of All Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.08972	.21960	.02473	***.60955***	-.03866
Macroeconomic Theory	.03656	.11381	.11982	***.64073***	-.01309
Longterm Finance	.25202	.17683	.04415	***.47221***	-.00089
Organization Theory	-.10341	.03616	***.54937***	.09003	.17980
Ethical Considerations	.20260	.03820	***.48724***	.11774	-.03520
Information Content	.07574	.23931	***.62097***	-.01980	.09561
Behavioural Implications	-.01596	.16082	***.72767***	.04507	.12145
Motivation & Perception	-.03063	.06764	***.56783***	.11124	.07507
Financial Statement Preparation	***.75259***	.08165	.03800	-.03470	-.02784
Conventional Valuation Bases	***.81994***	.11170	.05266	.05117	.02449
Other Valuation Bases	***.66382***	.16395	.05326	.18423	.08569
Major Regulatory Bodies	***.60525***	-.01621	.08620	.25273	.14316
Tax Regulations	***.45661***	-.03118	-.17251	.35908	.06156
Other Groups	.22395	.05489	.16480	***.42142***	.10951
International Reporting	.32095	.16342	.01222	***.41571***	.15031
Social Measurement	.13241	.05603	.34092	***.43471***	.19983
Financial Statement Analysis	***.46589***	.19060	-.08969	.22253	.09203
Working Capital	***.39795***	.33558	.05512	.24840	.01236
Capital Budgeting	.14721	***.48627***	.13899	.24300	.09537
Forecasting	.02765	***.59810***	.22129	.16266	.09314
Segment Accounting	.11528	***.64986***	.20047	.08273	.14638
Cost Behaviour	.18998	***.76815***	.02950	.23026	.05291
Variance Analysis	.04686	***.76977***	.18027	.09381	.10005
Independent Auditing	.38268	.01957	.05633	.08271	.03613
Internal Auditing	.16542	.06751	.17786	-.00739	.22311
Computer Systems	.07722	.16285	.27650	-.07985	***.61821***
Computer Programming	.08320	.04067	.08283	.06120	***.75818***
Quantitative Methods	.07744	.21103	.15906	.32003	***.54802***
Eigenvalues	6.6	2.5	1.9	1.2	0.98
Percentage of the variation explained	46.0%	17.7%	13.3%	8.1%	6.8%
Cumulative percentage	46.0%	63.7%	77.0%	85.1%	91.9%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX O

RELATIONSHIPS AMONG THE QUESTIONNAIRE TOPICS AND THE RIA CURRICULUM AREAS

APPENDIX O

Relationships Among the Questionnaire Topics and the RIA Curriculum Areas

Questionnaire Topics	RIA Curriculum Areas 1	2	3	4	5	6	7	8	9	10	11	12
Microeconomic Theory				4								
Macroeconomic Theory				5								
Longterm Finance								3				
Organization Theory			4									
Ethical Considerations									1			
Information Content					2							
Behavioural Implications		3										
Motivation & Perception			1									
Financial Statement Preparation	4											
Conventional Valuation Bases	7											
Other Valuation Bases	3											
Major Regulatory Bodies	1(25%)			1(25%)		1(25%)	1(25%)					
Tax Regulations							10					
Other Groups						1						

APPENDIX O (continued)

Relationships Among the Questionnaire Topics and the RIA Curriculum Areas

Questionnaire Topics	RIA Curriculum Areas 1	2	3	4	5	6	7	8	9	10	11	12
International Reporting	1											
Social Measurement	1											
Financial Statement Analysis	1(50%)							1(50%)				
Working Capital	1(50%)							1(50%)				
Capital Budgeting								3				
Forecasting		1(33%)										2(67%)
Segment Accounting		1										
Cost Behaviour		2										
Variance Analysis		7										
Independent Auditing									1			
Internal Auditing									9			
Computer Systems									1(10%)	1(10%)	10(80%)	
Computer Programming										9		
Quantitative Methods												10

APPENDIX O

Notes: 1. Column key: 1. Financial Accounting; 2. Management Accounting; 3. Organization Behaviour; 4. Economics; 5. Report Writing; 6. Commercial Law; 7. Taxation; 8. Financial Management; 9. Operational Auditing; 10. Data Processing; 11. Information Systems; and 12. Quantitative Methods.

2. The numbers opposite each topic represent the estimated lesson coverage in the appropriate course column. Where a number is accompanied by a percentage, the percentage shows any proportional allocation of the topic over the courses to which it relates.

3. To calculate a topic weight in a course, divide the lesson value (e.g., 4 for Financial Statement Preparation) by the appropriate column total (e.g. 17.25 for Financial Accounting).

APPENDIX P

RESULTS OF THE ANALYSIS ON RESPONDENT RATINGS BY FORMATIONS QUESTIONNAIRE PART ONE

APPENDIX P

Results of the Analysis on Respondent Ratings by Formations
Questionnaire Part One

	Industry Formations			Accounting Sector Formations	Designation Year Formations
	A versus B (1)	A versus C (2)	B versus C (3)	D versus E (4)	F versus G (5)
Microeconomic Theory	.000	.000	.000	.003	.536
Macroeconomic Theory	.134	.000	.001	.000	.200
Longterm Finance	.001	.000	.000	.003	.452
Organization Theory	.170	.000	.031	.037	.438
Ethical Considerations	.404	.808	.621	.955	.000
Information Content	.753	.074	.081	.234	.540
Behavioural Implications	.096	.086	.904	.009	.963
Motivation & Perception	.134	.106	.892	.000	.020
Financial Statement Preparation	.002	.056	.000	.043	.533
Conventional Valuation Bases	.002	.093	.000	.003	.156
Other Valuation Bases	.022	.078	.001	.009	.519
Major Regulatory Bodies	.000	.826	.000	.000	.540
Tax Regulations	.309	.001	.001	.000	.230
Other Groups	.516	.052	.019	.253	.006
International Reporting	.001	.000	.000	.116	.248
Social Measurement	.816	.044	.125	.052	.021
Financial Statement Analysis	.013	.034	.000	.125	.167
Working Capital	.289	.000	.000	.016	.320
Capital Budgeting	.996	.000	.000	.000	.841
Forecasting	.000	.000	.000	.000	.779
Segment Accounting	.000	.000	.043	.000	.257
Cost Behaviour	.000	.000	.000	.001	.494
Variance Analysis	.000	.000	.025	.000	.192
Independent Auditing	.001	.002	.880	.000	.766
Internal Auditing	.020	.000	.000	.000	.997
Computer Systems	.824	.525	.743	.364	.034
Computer Programming	.035	.018	.851	.001	.627
Quantitative Methods	.020	.344	.239	.275	.282

APPENDIX Q

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF INDUSTRY FORMATION A RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX Q

VARIMAX Rotated Factor Matrix of the Responses of Industry Formation A Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.01138	.13402	***.53349***	.30044	.07889
Macroeconomic Theory	.06558	.07814	***.63151***	.22704	.11955
Longterm Finance	.14400	.03627	***.44958***	***.51367***	-.00293
Organization Theory	-.03951	.01846	.20431	.15460	***.46823***
Ethical Considerations	.21495	.03498	.08034	-.01805	***.39512***
Information Content	.13328	.23052	-.04192	-.01015	***.59927***
Behavioural Implications	.07537	.12188	.05354	-.08193	***.74419***
Motivation & Perception	-.01410	.01345	.18222	.07453	***.50427***
Financial Statement Preparation	***.73071***	.06048	-.04087	.29343	.07114
Conventional Valuation Bases	***.79111***	.16595	.07290	.13853	.10339
Other Valuation Bases	***.57767***	.21560	.22500	.09476	.05574
Major Regulatory Bodies	***.57525***	.01549	.33221	.03987	.12024
Tax Regulations	.32478	-.06435	.34977	.23721	-.00519
Other Groups	.13265	.03762	***.41758***	.09889	.20066
International Reporting	.29934	.14910	.38548	.00439	.03302
Social Measurement	.13639	.08709	***.53311***	.01516	.24268
Financial Statement Analysis	.30268	.18855	.20289	***.53486***	-.01889
Working Capital	.29703	.22089	.19244	***.62879***	.03464
Capital Budgeting	.07748	***.41222***	.22485	***.66509***	.08465
Forecasting	.04968	***.56489***	.11347	.35853	.12588
Segment Accounting	.13864	***.59327***	.03003	.16468	.14781
Cost Behaviour	.08247	***.76640***	.15058	.17998	.06990
Variance Analysis	.11287	***.81586***	.04716	-.00857	.08608
Independent Auditing	.31172	.04936	.04923	.08187	.12329
Internal Auditing	.18634	.16483	.07842	.10275	.16489
Computer Systems	.11161	.20686	-.03724	.03759	.26861
Computer Programming	.12281	.06374	.08772	.06130	.08340
Quantitative Methods	.06660	.22727	.31445	.18913	.17310
Eigenvalues	6.9	1.8	1.8	1.4	0.94
Percentage of the variation explained	48.7%	13.0%	12.7%	10.1%	6.7%
Cumulative percentage	48.7%	61.7%	74.4%	84.5%	91.2%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX R

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF INDUSTRY FORMATION B RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX R

VARIMAX Rotated Factor Matrix of the Responses of Industry Formation B Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.14053	.03026	.12856	.20079	-.07046
Macroeconomic Theory	.06565	.05939	.18800	.00042	.03065
Longterm Finance	.26026	-.00822	**.57952**	-.04538	-.01545
Organization Theory	-.14203	**.61919**	.15596	.00354	.19622
Ethical Considerations	.16135	.34225	-.00407	-.06789	-.02467
Information Content	.11439	**.61518**	.01908	.18693	.06762
Behavioural Implications	.00920	**.67375**	-.10607	.22416	.14034
Motivation & Perception	-.05496	**.65544**	.05318	.03013	.07704
Financial Statement Preparation	**.49430**	-.06081	**.43558**	.03747	-.22226
Conventional Valuation Bases	**.67276**	.00343	.28888	.05530	-.10955
Other Valuation Bases	**.68804**	.05691	.22486	.13414	-.05771
Major Regulatory Bodies	**.72838**	-.02868	.13802	-.08028	.07038
Tax Regulations	**.52428**	-.19052	.09309	.19033	-.02410
Other Groups	**.43360**	.16619	.00727	.05397	.16514
International Reporting	**.43875**	-.01286	.02740	.10971	.21400
Social Measurement	.28222	.30453	.09873	.03478	.26512
Financial Statement Analysis	.38865	-.11834	**.47664**	.26933	-.04983
Working Capital	.35457	-.02038	**.61615**	.24801	-.03032
Capital Budgeting	.07696	0.9415	**.68383**	.23521	.13504
Forecasting	.13276	.21299	**.53446**	.32867	.14525
Segment Accounting	.10952	.29385	.13823	**.54915**	.16075
Cost Behaviour	.15988	.05388	.23224	**.81079**	.03102
Variance Analysis	-.01912	.23729	.36205	**.57589**	.13928
Independent Auditing	.37391	-.03583	.03837	.11245	.09356
Internal Auditing	.07176	.19572	.15168	.14798	.24323
Computer Systems	.01266	**.42395**	.01267	.05238	**.59438**
Computer Programming	-.01645	.11191	-.00849	.05420	**.69255**
Quantitative Methods	.10299	.18420	.14123	.17050	**.62322**
Eigenvalues	6.3	3.2	1.6	1.3	0.94
Percentage of the variation explained	42.7%	21.6%	10.9%	8.7%	6.4%
Cumulative percentage	42.7%	64.3%	75.2%	83.9%	90.3%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX S

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF INDUSTRY FORMATION C RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX S

VARIMAX Rotated Factor Matrix of the Responses of Industry Formation C Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.13098	.25061	-.03846	**.65115**	.06621
Macroeconomic Theory	-.00465	.17943	.11751	**.79456**	-.01291
Longterm Finance	.24764	**.45907**	.11398	**.48892**	.01450
Organization Theory	-.08521	.20283	**.57031**	.11283	.25398
Ethical Considerations	.27521	.08798	**.47330**	.17143	.10092
Information Content	-.03103	.19702	**.67190**	-.02076	.13937
Behavioural Implications	-.13165	.15777	**.82737**	-.02012	.03216
Motivation & Perception	-.02430	.15807	**.58352**	.02948	.04819
Financial Statement Preparation	**.77839**	.13298	.00518	-.01377	.01622
Conventional Valuation Bases	**.79113**	.06944	-.07190	.06174	.02202
Other Valuation Bases	**.67686**	.16517	-.02179	.07523	.06428
Major Regulatory Bodies	**.61138**	.07078	.06572	.21159	.19885
Tax Regulations	**.42118**	-.17133	-.25355	.20078	.03332
Other Groups	.26387	.11846	.11923	.36455	.00235
International Reporting	**.42437**	.10049	-.03820	**.40577**	.19242
Social Measurement	.15474	.20506	**.42379**	.34088	.03315
Financial Statement Analysis	**.57146**	.22156	-.11680	.11801	.01716
Working Capital	.38265	**.56664**	.15954	.17588	-.09874
Capital Budgeting	.15596	**.72601**	.22007	.25419	.03798
Forecasting	-.07528	**.71766**	.30898	.16456	.03928
Segment Accounting	.10890	**.74602**	.21671	.02792	.21806
Cost Behaviour	.23742	**.65310**	.04191	.22691	.12766
Variance Analysis	-.00319	**.66827**	.25101	.13173	.15629
Independent Auditing	**.53002**	-.09532	.05426	.12602	.35430
Internal Auditing	.29385	.00180	.14489	-.07006	**.46743**
Computer Systems	.07192	.14718	.15975	-.02959	**.69134**
Computer Programming	.06159	.10911	.06354	.09248	**.62993**
Quantitative Methods	.07770	.35859	.12044	.29235	**.43609**
Eigenvalues	6.7	3.5	1.7	1.1	1.1
Percentage of the variation explained	45.6%	24.0%	11.6%	7.6%	7.2%
Cumulative percentage	45.6%	69.6%	81.2%	88.8%	96.0%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX T

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF ACCOUNTING SECTOR FORMATION D RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX T

VARIMAX Rotated Factor Matrix of the Responses of Accounting Sector Formation D Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.08869	.19846	**.62033**	.02464	-.01749
Macroeconomic Theory	.03536	.08046	**.62425**	.12441	-.00177
Longterm Finance	.24449	.11268	**.47841**	.01942	.00481
Organization Theory	-.10576	.01155	.10068	**.53299**	.18208
Ethical Considerations	.21167	.03709	.10063	**.43052**	-.04218
Information Content	.10864	.24464	-.03141	**.61237**	.10542
Behavioural Implications	.00871	.15449	.04916	**.70904**	.11554
Motivation & Perception	.01266	.03003	.09837	**.56438**	.07165
Financial Statement Preparation	**.75270**	.06267	-.05888	.04320	-.00919
Conventional Valuation Bases	**.82054**	.12542	.05530	.09989	.02564
Other Valuation Bases	**.64343**	.18682	.18273	.08142	.08161
Major Regulatory Bodies	**.57106**	.02239	.24871	.12247	.13288
Tax Regulations	**.44213**	-.00206	.36424	-.14204	.07732
Other Groups	.17832	.06555	**.39478**	.18586	.10893
International Reporting	.31636	.16376	**.40266**	.01677	.13383
Social Measurement	.11236	.04116	**.44462**	.35446	.20696
Financial Statement Analysis	**.44458**	.16390	.23790	-.08835	.10911
Working Capital	**.41037**	.28499	.25342	.02276	.03229
Capital Budgeting	.16658	**.44852**	.24483	.10275	.08877
Forecasting	.03730	**.57809**	.15022	.18945	.11366
Segment Accounting	.13612	**.63707**	.06794	.17351	.15423
Cost Behaviour	.18951	**.76313**	.22211	.00752	.04779
Variance Analysis	.06336	**.78948**	.07016	.13983	.08177
Independent Auditing	.36082	.05726	.06741	.10664	-.00276
Internal Auditing	.15876	.10775	.01629	.19452	.20053
Computer Systems	.07245	.18370	-.06580	.28848	**.62858**
Computer Programming	.09451	.04175	.07004	.07874	**.74631**
Quantitative Methods	.07303	.22710	.33860	.17394	**.53615**
Eigenvalues	6.6	2.3	1.8	1.2	0.95
Percentage of the variation explained	47.0%	16.2%	12.7%	8.9%	6.8%
Cumulative percentage	47.0%	63.2%	75.9%	84.8%	91.6%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX U

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF ACCOUNTING SECTOR FORMATION E RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX U

VARIMAX Rotated Factor Matrix of the Responses of Accounting Sector Formation E Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.31936	.18511	.02156	.02078	-.06426
Macroeconomic Theory	.22431	.21619	.12490	-.01046	.04940
Longterm Finance	***.54289***	.34032	.08205	.05056	-.02278
Organization Theory	.17131	-.09766	***.60759***	.16817	.15442
Ethical Considerations	.06074	.19160	***.45515***	.28266	-.01625
Information Content	.16266	-.06090	***.65366***	.08116	.04349
Behavioural Implications	.12809	-.06636	***.76204***	-.06118	.12741
Motivation & Perception	.19078	-.02407	***.54014***	-.07611	.12604
Financial Statement Preparation	.27961	***.59492***	-.03547	***.50261***	-.18099
Conventional Valuation Bases	.18514	***.60570***	-.13589	***.43876***	-.08694
Other Valuation Bases	.21968	***.64496***	-.04396	.23293	.00402
Major Regulatory Bodies	.06308	***.73806***	.05085	.21500	.08936
Tax Regulations	.06283	***.58473***	-.21572	-.06344	-.06228
Other Groups	.08635	***.58816***	.11660	-.11953	.14050
International Reporting	.09961	***.51137***	.00354	.02085	.26452
Social Measurement	.16960	.36740	.30894	-.09575	.19809
Financial Statement Analysis	***.48302***	***.48555***	-.10488	.13140	-.06025
Working Capital	***.70217***	.35124	.08560	.09657	-.08353
Capital Budgeting	***.79259***	.15555	.19271	.01092	.11414
Forecasting	***.76994***	.07550	.23843	-.10244	.08940
Segment Accounting	***.68727***	.00234	.21969	.12410	.16961
Cost Behaviour	***.68731***	.17707	.11577	.09762	.11053
Variance Analysis	***.60936***	.04739	.27546	.02360	.24208
Independent Auditing	.00058	.35854	-.00375	***.65295***	.14234
Internal Auditing	.04036	-.00950	.19037	***.61195***	.22163
Computer Systems	.07342	-.03401	.26262	.35442	***.54200***
Computer Programming	.08853	.06500	.13502	.10339	***.79275***
Quantitative Methods	.29912	.15730	.16009	.03010	***.53090***
Eigenvalues	7.1	3.2	2.0	1.1	0.98
Percentage of the variation explained	46.8%	21.4%	13.2%	7.4%	6.5%
Cumulative percentage	46.8%	68.2%	81.4%	88.8%	95.3%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX V

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF DESIGNATION YEAR FORMATION F RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX V

VARIMAX Rotated Factor Matrix of the Responses of Designation Year Formation F Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.18590	.06502	.07164	***.67073***	-.04030
Macroeconomic Theory	.18168	.03796	.09881	***.70087***	-.02638
Longterm Finance	.19339	.29277	-.00493	***.50491***	.04045
Organization Theory	.07019	-.03147	***.50972***	.06717	.07057
Ethical Considerations	.06588	.22786	***.41554***	.12952	***.40075***
Information Content	.29330	.13334	***.62187***	-.00065	.05089
Behavioural Implications	.13443	-.02563	***.74962***	-.00555	-.05738
Motivation & Perception	.03834	-.03341	***.62117***	.04674	.05548
Financial Statement Preparation	.17325	***.66357***	.01437	-.03777	.23595
Conventional Valuation Bases	.08645	***.87475***	.04622	.10586	.12653
Other Valuation Bases	.14476	***.67233***	.05377	.15916	.10728
Major Regulatory Bodies	.02295	***.47835***	.13980	.19992	***.39441***
Tax Regulations	-.07855	.29406	-.08018	.28765	.22552
Other Groups	.08873	.08011	.28566	.31779	.22428
International Reporting	.11778	.24871	-.01132	***.46363***	.25461
Social Measurement	.01997	.06804	***.39986***	.30946	.20247
Financial Statement Analysis	.24903	***.45207***	-.06564	.11217	.13994
Working Capital	.32803	.35846	.01989	.21615	.10999
Capital Budgeting	***.52827***	.17497	.14373	.20732	.04354
Forecasting	***.63349***	.10409	.20143	.15209	-.00860
Segment Accounting	***.65690***	.08798	.15786	.07881	.11863
Cost Behaviour	***.75578***	.18676	.07660	.25427	.03868
Variance Analysis	***.80497***	.07162	.13551	.11990	.13186
Independent Auditing	.07802	.29352	.02177	.08433	***.68675***
Internal Auditing	.14630	.13951	.11876	-.08135	***.61813***
Computer Systems	.18945	.08066	.30041	-.11721	.14315
Computer Programming	.03529	.09888	.11206	.09198	.13691
Quantitative Methods	.26925	.04139	.25923	.27591	-.02040
Eigenvalues	7.0	2.4	1.9	1.3	0.86
Percentage of the variation explained	47.8%	16.6%	12.8%	8.5%	5.8%
Cumulative percentage	47.8%	64.4%	77.2%	85.7%	91.5%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX W

VARIMAX ROTATED FACTOR MATRIX OF THE RESPONSES OF DESIGNATION YEAR FORMATION G RESPONDENTS TO PART ONE OF THE QUESTIONNAIRE

APPENDIX W

VARIMAX Rotated Factor Matrix of the Responses of Designation Year Formation G Respondents to Part One of the Questionnaire

TOPICS	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Microeconomic Theory	.06545	.23777	.00917	***.54416***	-.06270
Macroeconomic Theory	.00432	.08015	.14591	***.59721***	-.02422
Longterm Finance	.17589	.16915	.08082	***.39752***	.00095
Organization Theory	-.06567	.01120	***.61033***	.05297	.16566
Ethical Considerations	.24308	.02615	***.47242***	.08317	-.01464
Information Content	.05314	.22794	***.59405***	-.02456	.07848
Behavioural Implications	-.03234	.20607	***.66603***	.08372	.10966
Motivation & Perception	-.02881	.10421	***.53505***	.11971	.06339
Financial Statement Preparation	***.76872***	.07994	.01082	-.01214	-.04016
Conventional Valuation Bases	***.79270***	.15416	.00537	.07932	-.03059
Other Valuation Bases	***.63286***	.19816	.01874	.24587	.07502
Major Regulatory Bodies	***.64121***	-.01215	.03648	.30667	.13557
Tax Regulations	***.47141***	-.00188	-.23484	***.39108***	.04723
Other Groups	.27442	.04373	.11874	***.46064***	.07908
International Reporting	.28961	.18708	.00568	***.40179***	.12384
Social Measurement	.15728	.08332	.33139	***.48243***	.19226
Financial Statement Analysis	***.43866***	.18805	-.11287	.24453	.10734
Working Capital	.36819	.35891	.07627	.19473	.00810
Capital Budgeting	.10035	***.48587***	.14644	.19407	.10848
Forecasting	-.05100	***.61378***	.21284	.14778	.08129
Segment Accounting	.12821	***.65035***	.22399	.06548	.12613
Cost Behaviour	.16767	***.74527***	.01147	.19750	.06024
Variance Analysis	.01853	***.74252***	.20294	.07284	.11181
Independent Auditing	***.58589***	-.06893	.17381	.02263	.13662
Internal Auditing	.37226	-.02697	.30726	-.03734	.29697
Computer Systems	.10480	.15760	.26249	-.05438	***.62317***
Computer Programming	.07352	.05475	.07138	.05383	***.76735***
Quantitative Methods	.09004	.20492	.10004	.34228	***.57585***
Eigenvalues	6.4	2.6	1.9	1.1	1.1
Percentage of the variation explained	47.0%	19.4%	13.6%	8.2%	7.8%
Cumulative percentage	47.0%	66.4%	80.0%	88.2%	96.0%

Note: Topic loadings of .40 or higher are in italics.

APPENDIX X

A SUMMARY AND APPROXIMATE LABELING OF THE VARIMAX ROTATED FACTORS FOR EACH FORMATION

APPENDIX X

A Summary and Approximate Labeling
of the VARIMAX Rotated Factors for Each Formation

All Respondents (N=1425)

Factor	Label	% of Explanation
1.	Financial Accounting	46.0%
2.	Management Accounting	17.7%
3.	Human Behaviour	13.3%
4.	Finance and Reporting Requirements	8.1%
5.	Computer and Related Techniques	6.8%

A. Manufacturing and Merchandising (N=691)

Factor	Label	% of Explanation
1.	Financial Accounting	48.7%
2.	Management Accounting	13.0%
3.	Economics and Special Reporting Requirements	12.7%
4.	Financial Management	10.1%
5.	Human Behaviour	6.7%

B. Commercial and Service (N=352)

Factor	Label	% of Explanation
1.	Financial Accounting and Taxation	42.7%
2.	Human Behaviour and Information Systems	21.6%
3.	Financial Management	10.9%
4.	Management Accounting	8.7%
5.	Computers and Quantitative Techniques	6.4%

C. Government and Other Non-Profit (N=382)

Factor	Label	% of Explanation
1.	Financial Accouting, Taxation and Internal Audit	45.6%
2.	Management Accounting and Finance	24.0%
3.	Human Behaviour and Social Measurement	11.6%
4.	Economics and International Reporting	7.6%
5.	Computers, Quantitative Techniques and External Audit	7.2%

APPENDIX X (continued)

A Summary and Approximate Labeling
of the VARIMAX Rotated Factors for Each Formation

D. General Accountancy (N=1132)

Factor	Label	% of Explanation
1.	Financial Accounting and Taxation	47.0%
2.	Management Accounting	16.2%
3.	Economics and Special Reporting	12.7%
4.	Human Behaviour	8.9%
5.	Computers and Quantitative Techniques	6.8%

E. Specialized Accountancy (N=293)

Factor	Label	% of Explanation
1.	Financial Management and Management Accounting	46.8%
2.	Financial Accounting	21.4%
3.	Human Behaviour	13.2%
4.	Financial Statements and Auditing	7.4%
5.	Computers and Quantitative Techniques	6.5%

F. Early Curriculum Years (N=491)

Factor	Label	% of Explanation
1.	Management Accounting	47.8%
2.	Financial Accounting	16.6%
3.	Human Behaviour	12.8%
4.	Economics and International Reporting	8.5%
5.	Auditing	5.8%

G. Late Curriculum Years (N=934)

Factor	Label	% of Explanation
1.	Financial Accouting, Taxation and Internal Audit	47.0%
2.	Management Accounting	19.4%
3.	Human Behaviour	13.6%
4.	Economics and Special Reporting	8.2%
5.	Computers and Quantitative Techniques	7.8%

Note: The complete factor matrices are given at Appendix N (all respondents) at Appendices Q to W, inclusive (formations A to G, respectively).